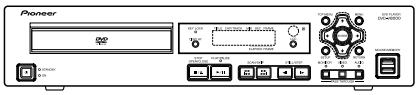
Pioneer sound.vision.soul

Service Manual



DVD-V8000

ORDER NO.
RRV3389

DVD PLAYER

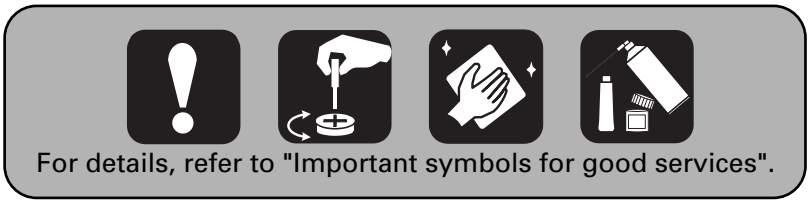
DVD-V8000

RACK MOUNT KIT

CB-A802 XJ/WL5

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Remarks
DVD-V8000	KUCXJ	AC120 V	1	
DVD-V8000	WYXJ5	AC 220 V to 240 V	2	
CB-A802	XJ/WL5	–		



PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T-ZZR JULY 2006 printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to causecancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

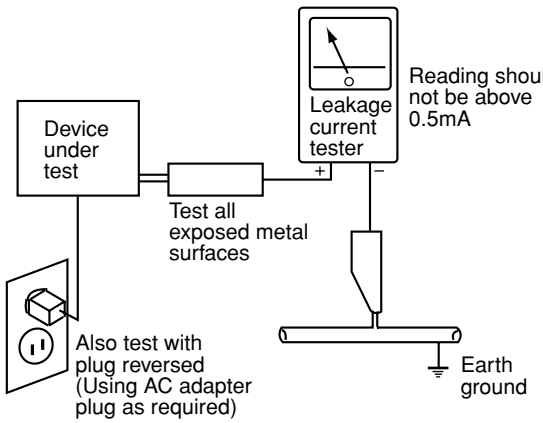
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (waterpipe , conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING !

THE AEL (ACCESSIBLE EMISSION LEVEL) OF THE LASER POWER OUTPUT IS LESS THAN CLASS 1 BUT THE LASER COMPONENT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS 1.
A SPECIALLY INSTRUCTED PERSON SHOULD DO SERVICING OPERATION OF THE APPARATUS.

LASER DIODE CHARACTERISTICS

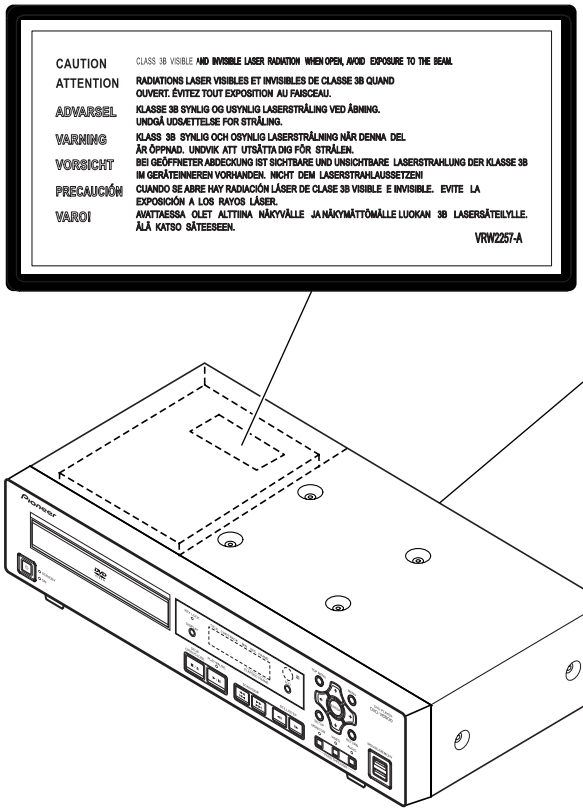
FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 650 nm
FOR CD : MAXIMUM OUTPUT POWER : 7 mW
WAVELENGTH : 780 nm

LABEL CHECK

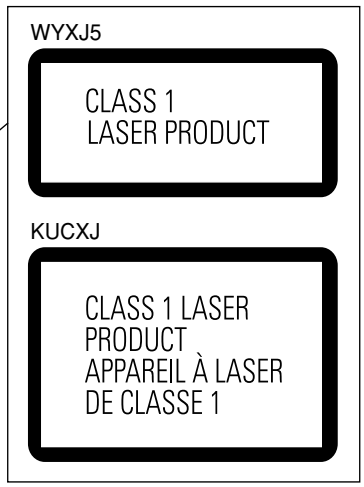
Additional Laser Caution

1. Loading-status detection switch (S101 on the LOAB assy) are detected by the microprocessor (IC601 in the DVDM assy).
   • To permit the laser diode to oscillate, it is required to set the loading-status detection switch for the clamp position (the center terminal of S101 is shorted to +3V).
   When the voltage of IC101-pin 21 is +3V, IC601 (microprocessor) -pin 83 is +3V and IC601-pin 84 is +3V, 650nm laser diode for DVD oscillates in the DVDM Assy.
   When the voltage of IC101-pin 21 is +3V, IC601 (microprocessor) -pin 83 is 0V (GND) and IC601-pin 84 is +3V, 780nm laser diode for CD oscillates in the DVDM Assy.
   In the test mode * , the laser diode oscillates when microprocessor detects a PLAY signal, or when the PLAY key is pressed (S9043 ON in the KEYB assy), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

* : See page 87.



(Printed on the Rear Panel)



[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

● Steps to be taken during repair

The steps and care to be taken when Assys are replaced for repair or inspection are described here.

First, copy the user setting data to a USB memory device.

Before repair, inspection, or downloading of the firmware, the files indicated below must be copied to a USB memory device just in case the user setting data are accidentally reset to default:

- SETUP menu and ADV. SETUP menu (***.set): SAVE SETUP
- Command stack (***.cmd): SAVE COMMAND STACK

The Error History must be also copied to a USB memory device. (Data on the serial number and accumulated playback time will also be obtained.)

- Error History (***.err): SAVE ERROR LOG

For detailed operation, see the operating instructions.

When the pickup or the part that contains the pickup, such as the Traverse mechanism, is to be replaced

- For replacement, follow the procedures described in "7.6 DISASSEMBLY."
- For adjustment, follow the procedures described in "6. ADJUSTMENT."
- Perform only "How to reset playback time B" in "7.1.7."

When the POWER SUPPLY Unit is to be replaced

- Perform only "How to reset Power-on time B" in "7.1.7."

When the DVDM Assy is to be replaced

Replace the Assy, following the procedures described in "7.6 DISASSEMBLY."

- Before disconnecting the FFC cable between the Pickup Assy and the DVDM Assy (CN111), be sure to short-circuit the short-circuiting land of the pickup with Sn-Ag-Cu alloy.
- If the AJKB Assy is to be replaced at the same time, resetting of the ID number and copying of ID data are required.
- See "7. GENERAL INFORMATION."

When the AJKB Assy is to be replaced

- Copying of ID data is required. Also, destination setting and input of the serial number are required.
- See "7. GENERAL INFORMATION."
- If the DVDM Assy is to be replaced at the same time, besides the settings mentioned above, resetting of the ID number is also required.
- See "7. GENERAL INFORMATION."

When downloading the firmware

If you download the firmware via the RS-232C serial port after failing to upgrade it using the CD-R disc, settings, such as SETUP, ADV.SETUP, and the command stack, are all reset to default.

- See "7. GENERAL INFORMATION."

CONTENTS

1. SPECIFICATIONS

Specifications

General

System ..... DVD Player
Electrical ratings
USA and Canada..... AC 120 V, 50 Hz/60 Hz
Europe..... AC 220 – 240 V, 50 Hz/60 Hz
Power consumption ..... 23 W
Standby power consumption ..... 0.8 W
Startup current
USA and Canada..... 22.1 A or less
Europe..... 46.3 A or less
Weight ..... 5.3 kg (11.7 lbs)
External dimensions
..... 420 mm (W) x 86.2 mm (H) x 309.2 mm (D)
(including protuberances)
16-9/16 in (W) x 3-3/8 in (H) x 12-3/16 in (D)
Operating temperature ..... +5 °C to +35 °C
(+41 °F to +95 °F)
Operating humidity ..... 5 % to 85 % RH (no condensation)

Playback

Playable discs..... DVD-Video, DVD-R, DVD-RW, Video-CD,
Audio-CD, CD-R, CD-RW

Video Output

Composite .....BNCx1, 1.0 Vp-p, 75 Ω (VIDEO OUT)
Pin jack x 1, 1.0 Vp-p,
75 Ω (MONITOR VIDEO OUT)
S-VIDEO..... 4P mini DIN x 1 (S-VIDEO OUT)
Y:1.0 Vp-p, 75 Ω
C: 0.286 Vp-p (NTSC), 0.300 Vp-p (PAL), 75 Ω
Component ..... BNC x 3 (COMPONENT VIDEO OUT)
Y: 1.0 Vp-p, 75 Ω
Pb: 0.7 Vp-p, 75 Ω
Pr: 0.7 Vp-p, 75 Ω
DVI ..... 24-Pin DVI-D connector x 1
(conforms to DVI 1.0, supports HDCP Ver.1.0)

Audio Output

Analog ..... Pin jack x 2, 2 Vrms (0 dBfs),
1.5 k Ω or less (AUDIO OUT L, R)
Digital .....Pin jack x 1, 0.5 Vp-p, 75 Ω
(DIGITAL AUDIO OUT COAXIAL)
Optical fiber connector x 1
(DIGITAL AUDIO OUT OPTICAL)

Video Input

Composite .....BNC x 1, 1.0 Vp-p, 75 Ω (VIDEO IN)

Audio Input

Analog ..... Pin jack x 2, 2 V rms (0 dBfs), 22 k Ω
or more (AUDIO IN, L, R), With input level control (LEVEL)

External Sync Input

Black burst .....BNC x 2, 0.286 Vp-p (NTSC),
0.300 Vp-p (PAL), 75Ω ON/OFF (EXT SYNC IN)

Other

RS-232C connector.....D-sub 9-Pin (male) x 1
(conforms to RS-232C; inch threads)
EXT TERMINAL connector....Mini D-sub 15-Pin (female) x 1
(inch threads)
MOUSE/MEMORY connectors .....
USB connectors 4P type A (conforms with USB 1.1) x 3
(total current supplied for all three ports: Max 0.7 A)

Accessories:

Remote control unit 1
R6 (AA) batteries 2
Power cord 1
Warranty .....1 (USA and Canada models only)
Operating Instructions 1

• These specifications and designs are subject to change without notice.

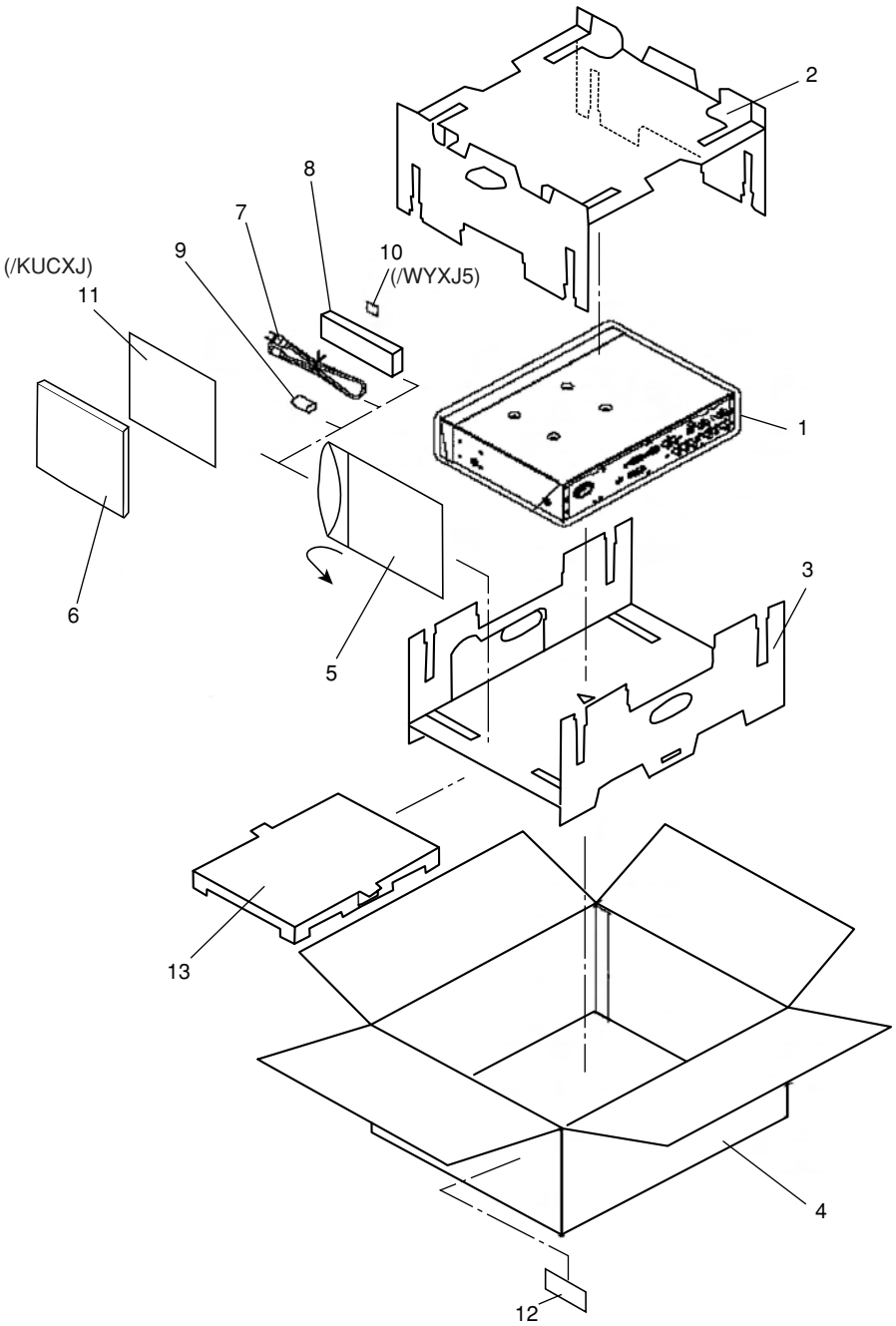
Note

The specifications and design of this product are subject to change without notice, due to improvement.

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



PACKING parts List

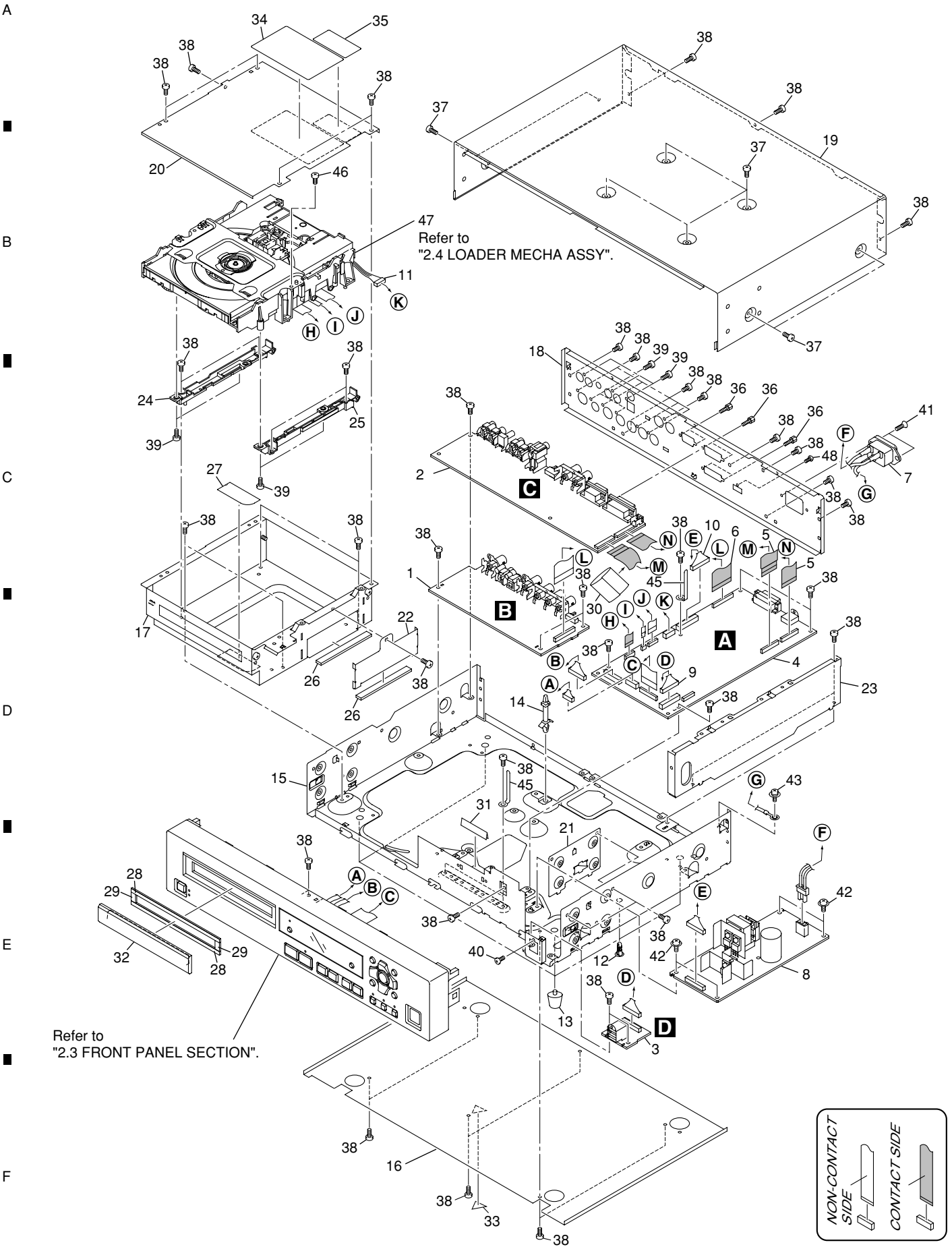
Mark	No.	Description	Part No.
	1	Mirror Mat (850 x 750)	DHL1156
	2	Pad (Top)	DHA1704
	3	Pad (Bottom)	DHA1703
	4	Packing Case	See contrast table (2)
NSP	5	Polyethylene Bag	AHG7117
	6	Instruction Manual (English, French)	DRE1031
⚠	7	Power Cord	See contrast table (2)
	8	Remote Control Unit	DXX2574
NSP	9	Bettery (R6P, AA)	VEM1031
	10	Label (WEEE)	See contrast table (2)
NSP	11	Warranty Card PUSA	See contrast table (2)
NSP	12	Label	VRW1629
	13	Spacer	DHA1719

(2) CONTRAST TABLE

DVD V8000/KUCXJ and DVD-V8000/WYXJ5 are construccted the same except for following:

Mark	No.	Symbol and Description	DVD-V8000 /KUCXJ	DVD-V8000 /WYXJ5
	4	Packing Case	DHG2601	DHG2600
⚠	7	Power Cord	ADG1215	ADG1214
	10	Label (WEEE)	Not used	ARW7322
NSP	11	Warranty Card PUSA	DRY1240	Not used

2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

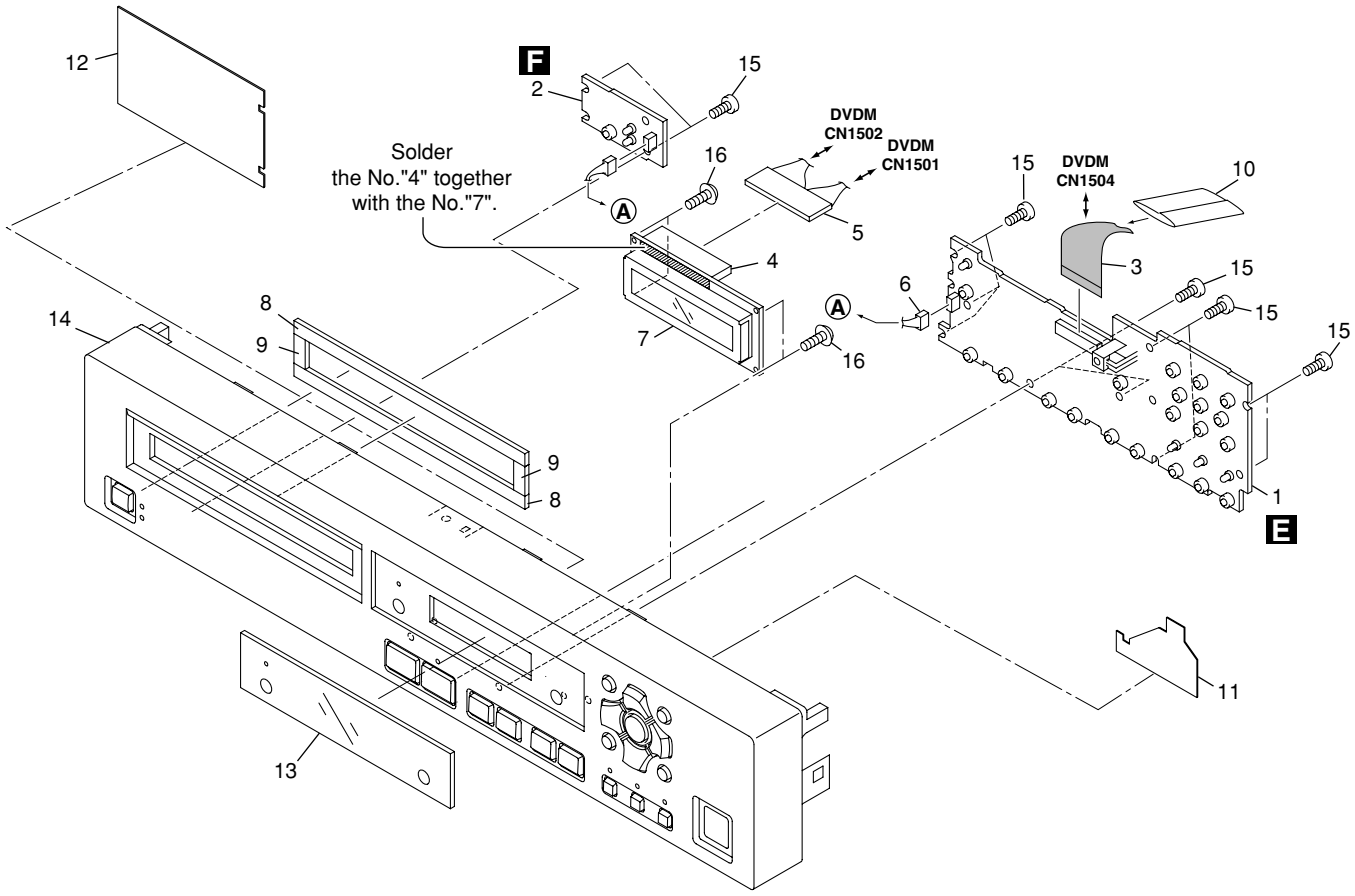
Mark	No.	Description	Part No.
	1	VJKB Assy	DWZ1175
	2	AJKB Assy	DWZ1176
	3	USBB Assy	DWZ1179
	4	DVDM Assy	DWS1364
	5	FFC (24P)	DDD1294
	6	FFC (29P)	DDD1296
⚠	7	AC Inlet Assy	DKP3770
⚠	8	SYPS Assy	DWR1401
	9	Connector Assy	PF12PP-D12
	10	Connector Assy	PF13PP-D35
	11	Connector Assy	PG05KK-E30
	12	Spacer	AEC1065
	13	Leg Assy SX (PLS)	AEC7113
	14	PCB Support	AEC7513
NSP	15	Base Shassis	DNA1330
	16	Bottom Plate	DNA1331
	17	Mecha Case (Bottom)	DNA1332
	18	Rear Panel	See contrast table (2)
	19	Bonnet Case S	DXX2576
	20	Mecha Case (Top)	DNH2702
	21	Hole Cover	DNH2705
	22	Mecha Case (Side)	DNH2727
	23	Barrier	DNH2758
	24	Adapter 3 L (ABS)	VNL1958
	25	Adapter 3 R (ABS)	VNL1959
	26	Cable Packing	DEC2885
	27	Eject Hole Sheet	DEC2891
	28	Tray Packing A	DEC2894
	29	Tray Packing B	DEC2895
	30	EMI Sheet B	DEC2960
NSP	31	Sheet	VEX1024
	32	Tray Panel	DNK4535
NSP	33	Caution Label	DRW1975
	34	Service Caution Label	DRW2306
	35	Laser Caution (PAP)	VRW2257
	36	Hexagon Head Screw	BBA1051
	37	Screw	BBT40P080FTB
	38	Screw	BBZ30P060FTB
	39	Screw	BPZ30P080FCC
	40	Screw	CBA1805
	41	Screw	CBZ30P080FTB
	42	Screw	IBZ30P060FCC
	43	Screw	PMB40P080FTC
	45	Cord Clamper	RNH-184-0
	46	Screw	VBA1094
NSP	47	LOADER MECHA ASSY	VWT1229
	48	Screw	PMZ25P050FTC

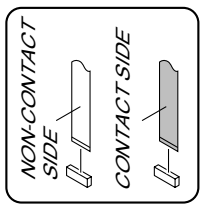
(2) CONTRAST TABLE

DVD-V8000/KUCXJ and DVD-V8000/WYXJ5 are construccted the same except for following:

Mark	No.	Symbol and Description	DVD-V8000 /KUCXJ	DVD-V8000 /WYXJ5
NSP	18	Rear Panel	DNC1781	DNC1780

2.3 FRONT PANEL SECTION





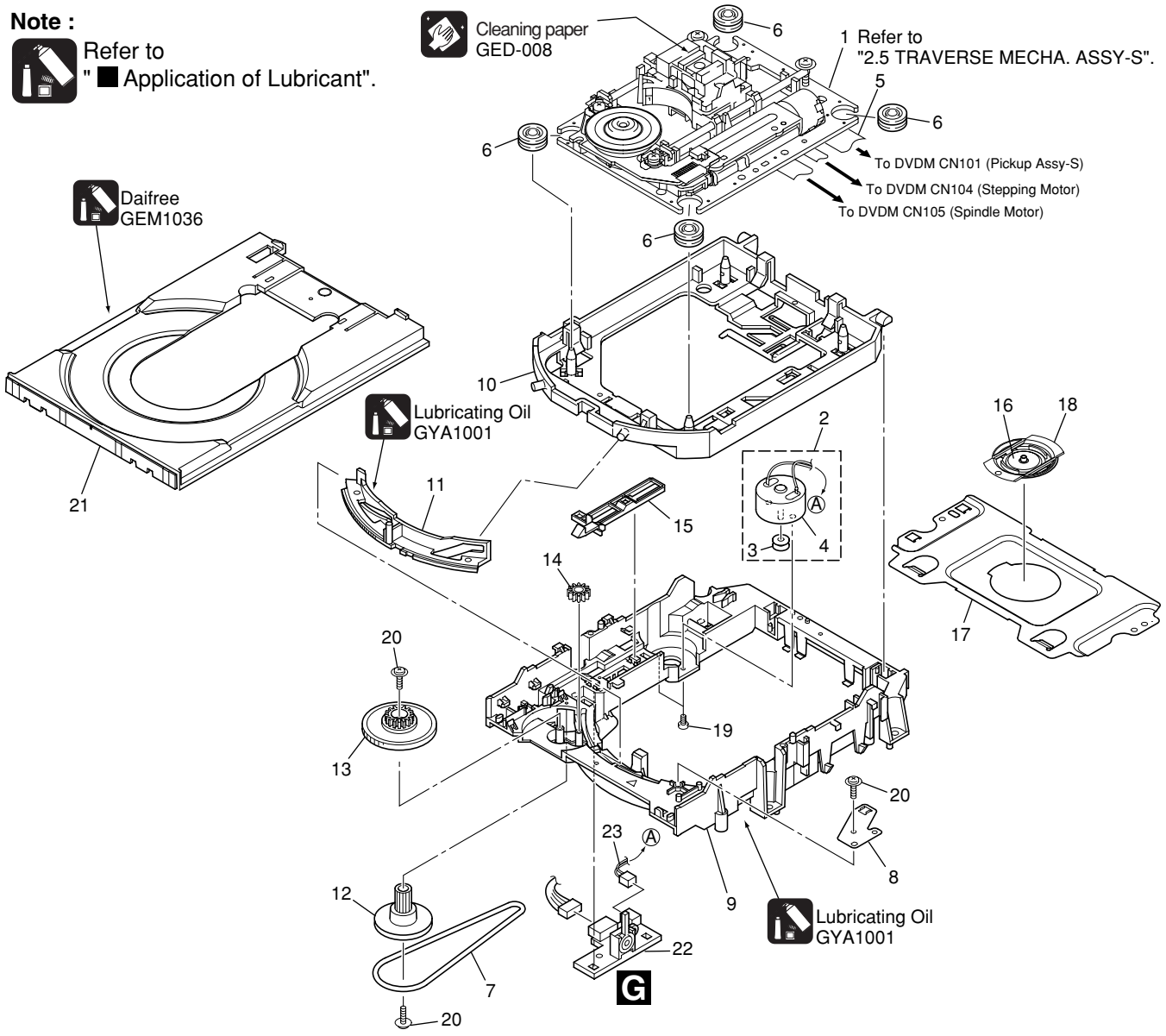
FRONT PANEL SECTION parts List

Mark	No.	Description	Part No.
	1	KEYB ASSY	DWZ1177
	2	PWSB ASSY	DWZ1178
	3	FFC (24P)	DDD1297
	4	Connector	DKN1418
	5	Connector Assy	DKP3746
	6	Connector Assy	DKP3747
	7	LCD Module	DWG1590
	8	Tray Packing C	DEC2896
	9	Tray Packing D	DEC2897
	10	EMI Sheet A	DEC2959
	11	Display Sheet A	DEC2971
	12	Display Sheet B	DEC2972
	13	Display Window	DAH2429
	14	Front Panel Assy	DXA2066
	15	Screw	BPZ30P080FCC
	16	Screw	IPZ30P080FTC

2.4 LOADER MECHA. ASSY

Note :

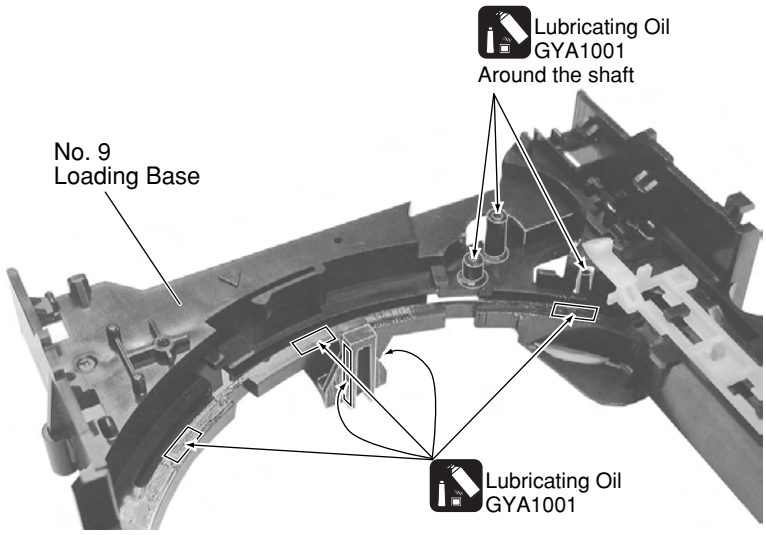
Refer to
" ■ Application of Lubricant".

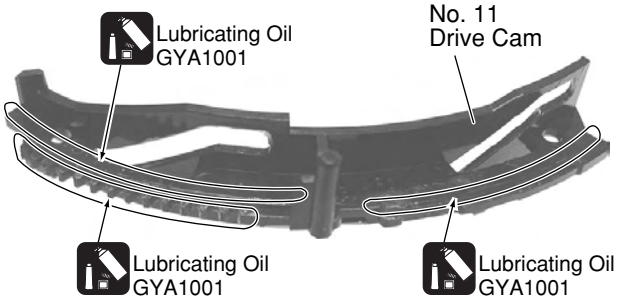


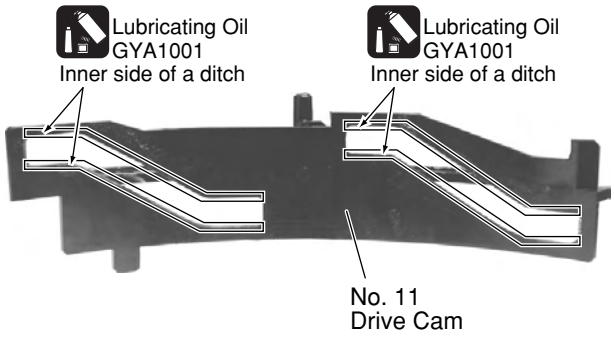
LOADER MECHA. ASSY parts List

Mark	No.	Description	Part No.
	1	Traverse Mecha. Assy-S	VXX3125
	2	Loading Motor Assy	VXX2912
	3	Motor Pulley	PNW1634
NSP	4	Motor	VXM1107
	5	Flexible Cable (24P)	VDA2135
	6	Floating Rubber	VEB1351
	7	Belt	VEB1358
	8	Stabilizer	VNE2253
	9	Loading Base	VNL1917
	10	Float Base DVD	VNL1918
	11	Drive Cam	VNL1919
	12	Gear Pulley	VNL1921
	13	Loading Gear	VNL1922
	14	Drive Gear	VNL1923
	15	SW Lever	VNL1925
	16	Clamper Plate	VNE2342
	17	Bridge	VNE2343
	18	Clamper	VNL1924
	19	Screw	JGZ17P028FTC
	20	Screw	VBA1094
	21	Tray	VNL1920
NSP	22	LOAB Assy	VWG2426
	23	Connector Assy (2P)	VKP2253

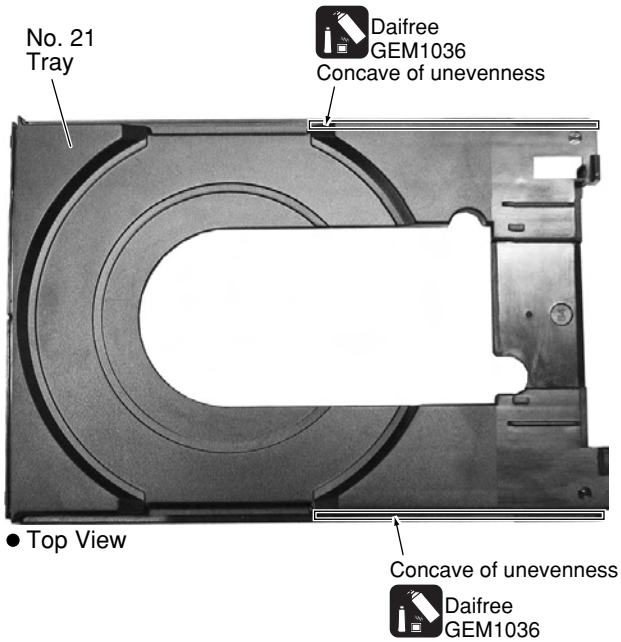
Application of Lubricant





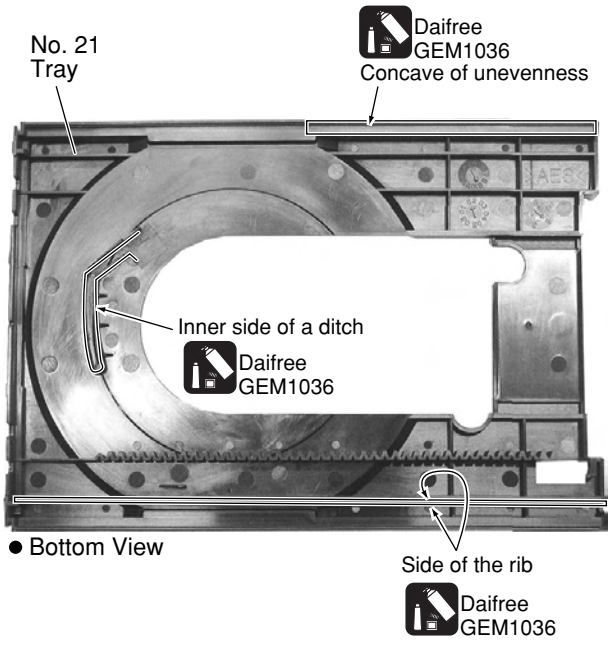


● Front View



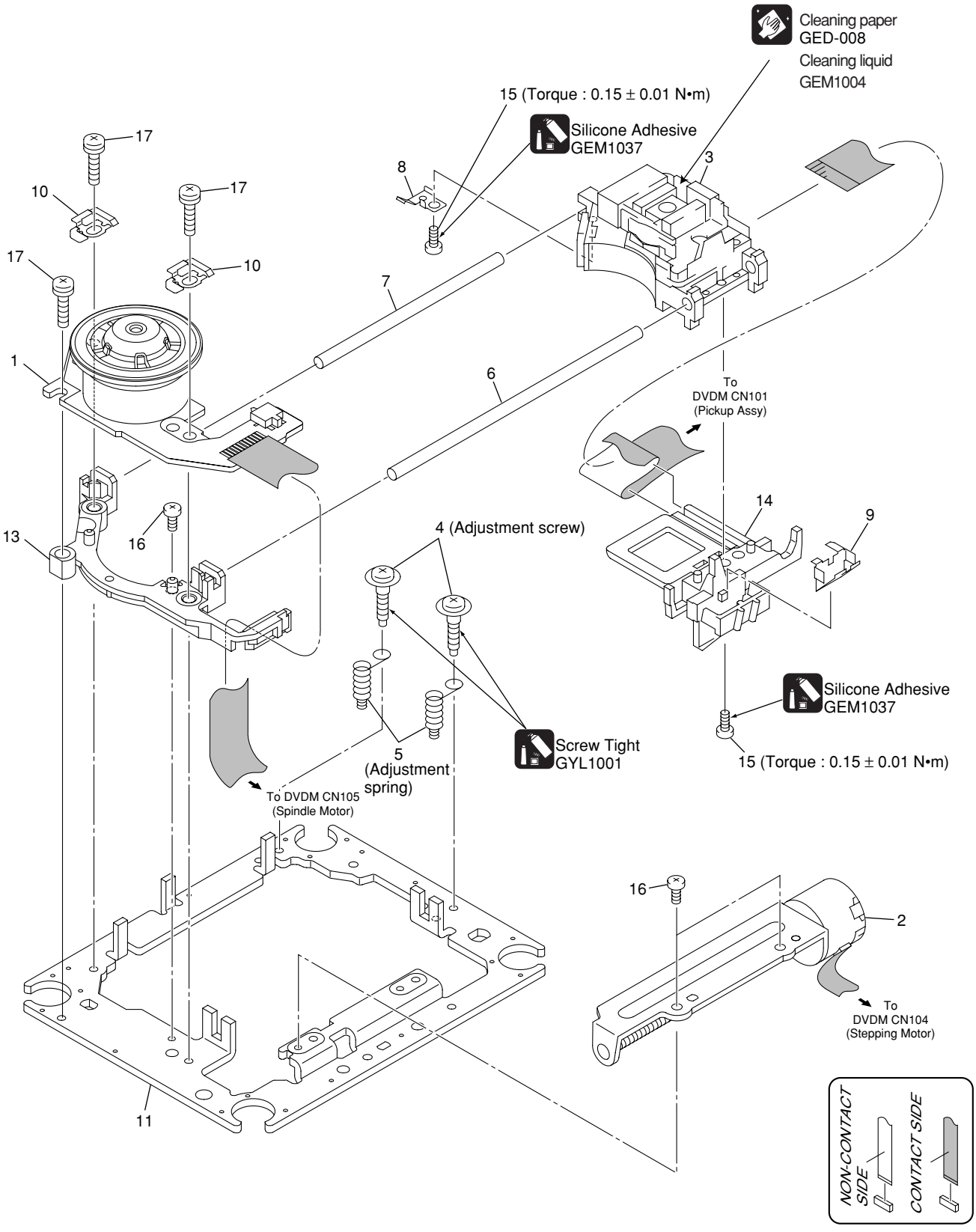
● Top View

● Rear View



● Bottom View

2.5 TRAVERSE MECHA. ASSY-S

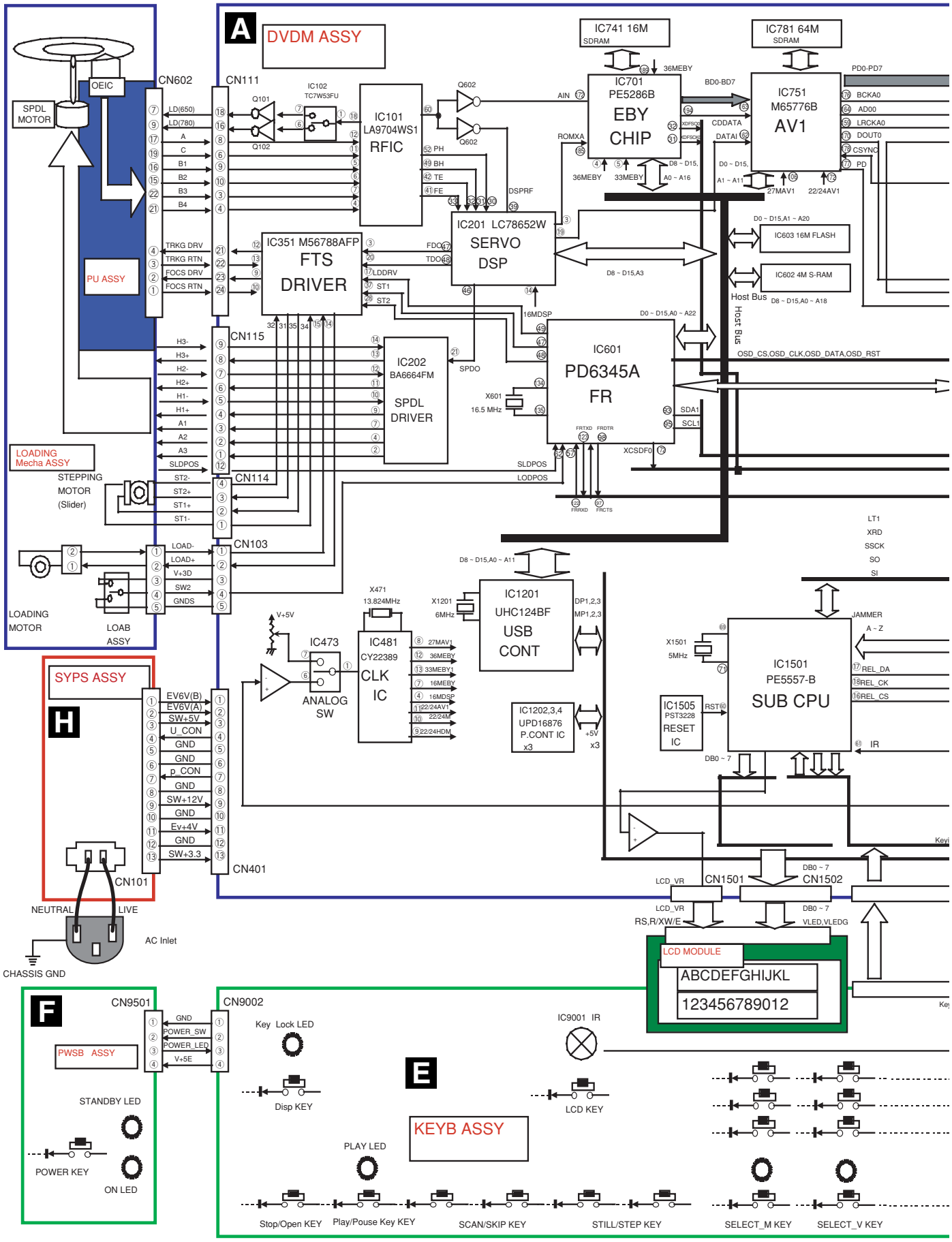


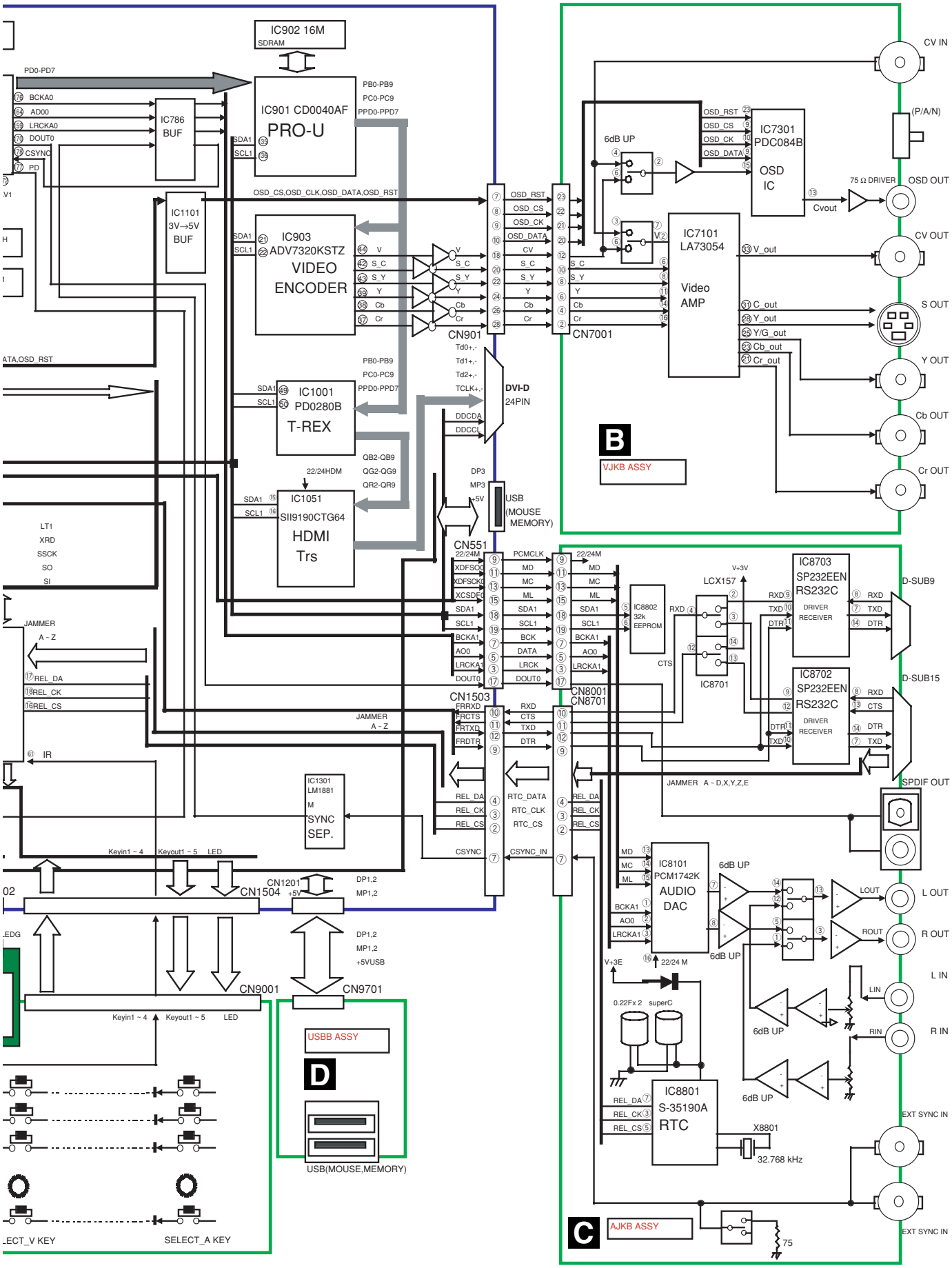
TRAVERSE MECHA. ASSY-S parts List

Mark	No.	Description	Part No.
	1	Spindle Motor	VXM1112
	2	Stepping Motor	VXM1113
	3	Pickup Assy-S	OXX8018
	4	Skew Screw	VBA1091
	5	Skew Spring	VBH1335
	6	Guide Bar	VLL1514
	7	Sub Guide Bar	VLL1515
	8	Leaf Spring	VNC1023
	9	Joint Spring	VNC1019
	10	Support Spring	VNC1020
NSP	11	Mecha.Chassis	VNE2344
	12	Damper Sheet	VEB1335
	13	Spacer	VNL1913
	14	Joint 03	VNL1949
	15	Tapping Screw	VBA1092
	16	Screw	BBZ20P050FTC
	17	Screw	PMA26P100FTC

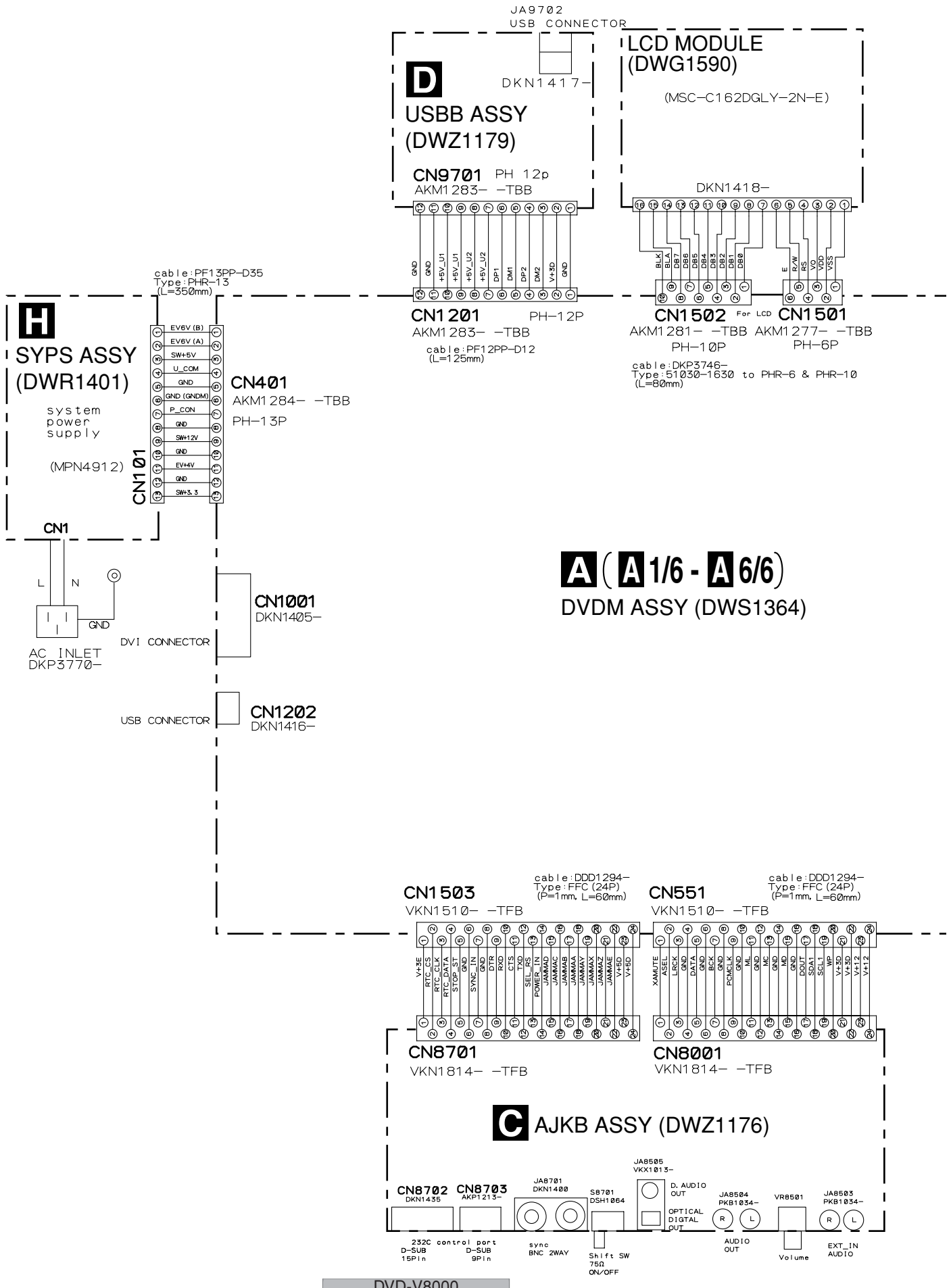
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

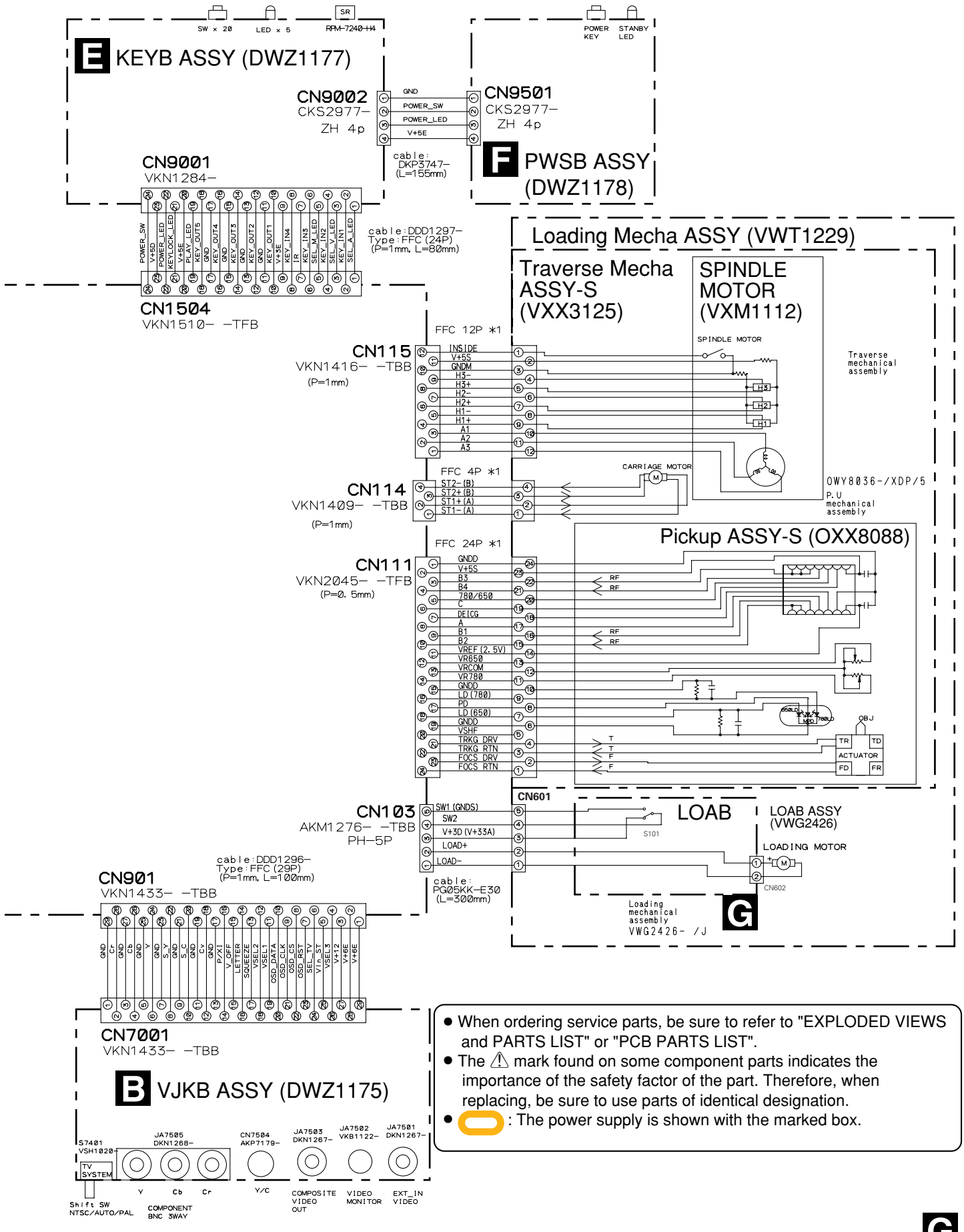
3.1 BLOCK DIAGRAM




IC902 16M
SDRAM
IC901 CD0040AF
PRO-U
PD0-PD7
PB0-PB9
PC0-PC9
PPD0-PPD7
IC786
BUF
IC1101
3V→5V
BUF
IC903
ADV7320KSTZ
VIDEO
ENCODER
OSD_CS,OSD_CLK,OSD_DATA,OSD_RST
CN901
IC1001
PD0280B
T-REX
IC1051
SII9190CTG64
HDMI
Trs
DVI-D
24PIN
USB
(MOUSE
MEMORY)
CN551
CN1503
CN1504
CN1201
CN9001
CN9701
IC1301
LM1881
SYNC
SEP.
USBB ASSY
USB(MOUSE,MEMORY)
SELECT_A KEY
IC7301
PDC084B
OSD
IC
IC7101
LA73054
Video
AMP
CN7001
CV IN
(P/A/N)
OSD OUT
CV OUT
S OUT
Y OUT
Cb OUT
Cr OUT
VJKB ASSY
IC8802
32k
EEPROM
LCX157
IC8701
IC8703
SP232EEN
RS232C
DRIVER
RECEIVER
D-SUB9
IC8702
SP232EEN
RS232C
DRIVER
RECEIVER
D-SUB15
CN8001
CN8701
IC8101
PCM1742K
AUDIO
DAC
SPDIF OUT
L OUT
R OUT
L IN
R IN
IC8801
S-35190A
RTC
X8801
32.768 kHz
EXT SYNC IN
AJKB ASSY

3.2 LOAB ASSY and OVERALL WIRING DIAGRAM



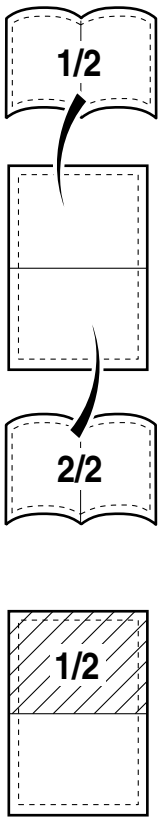


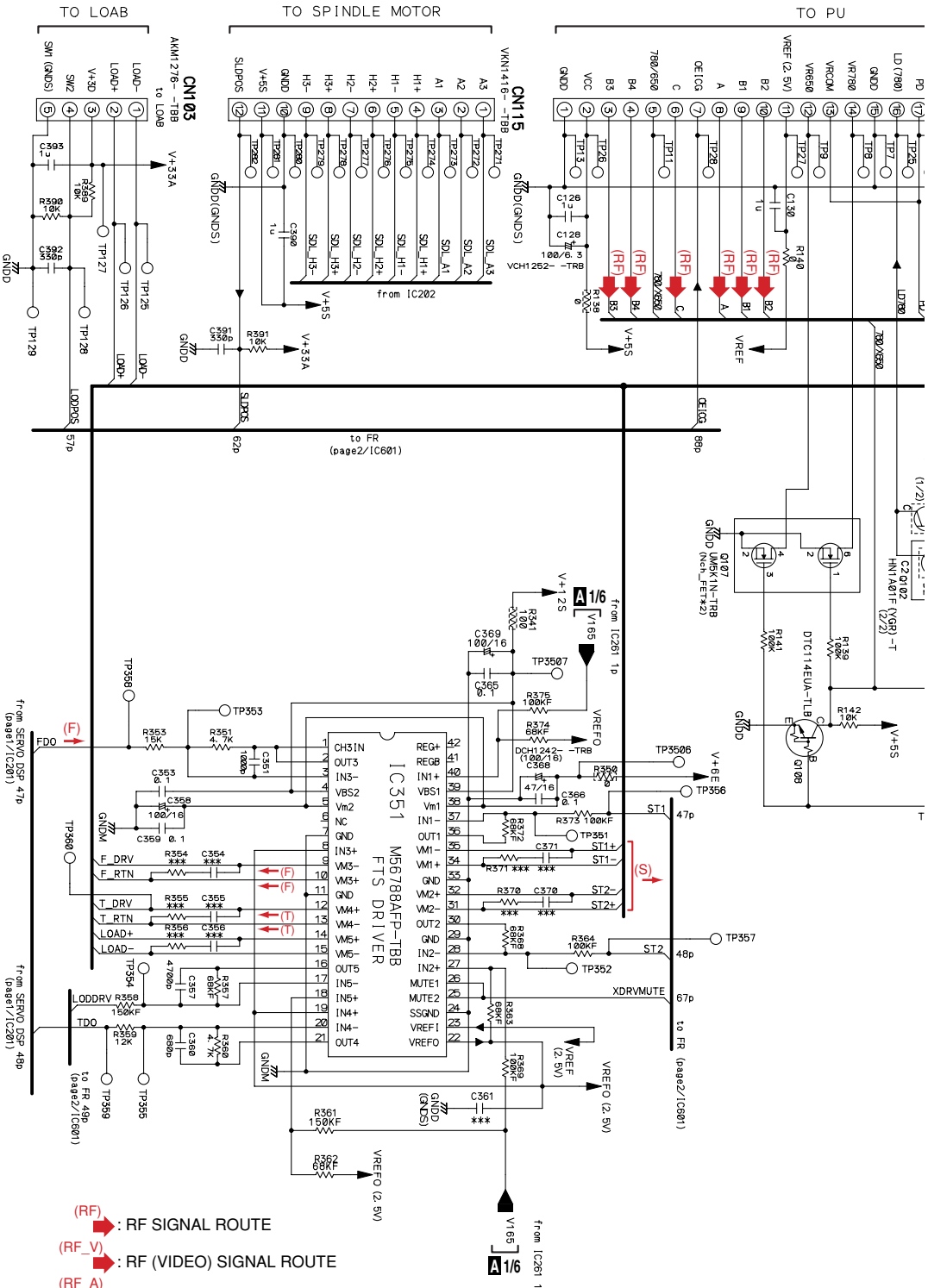
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

3.3 DVDM ASSY 1/6 [FTS BLOCK]

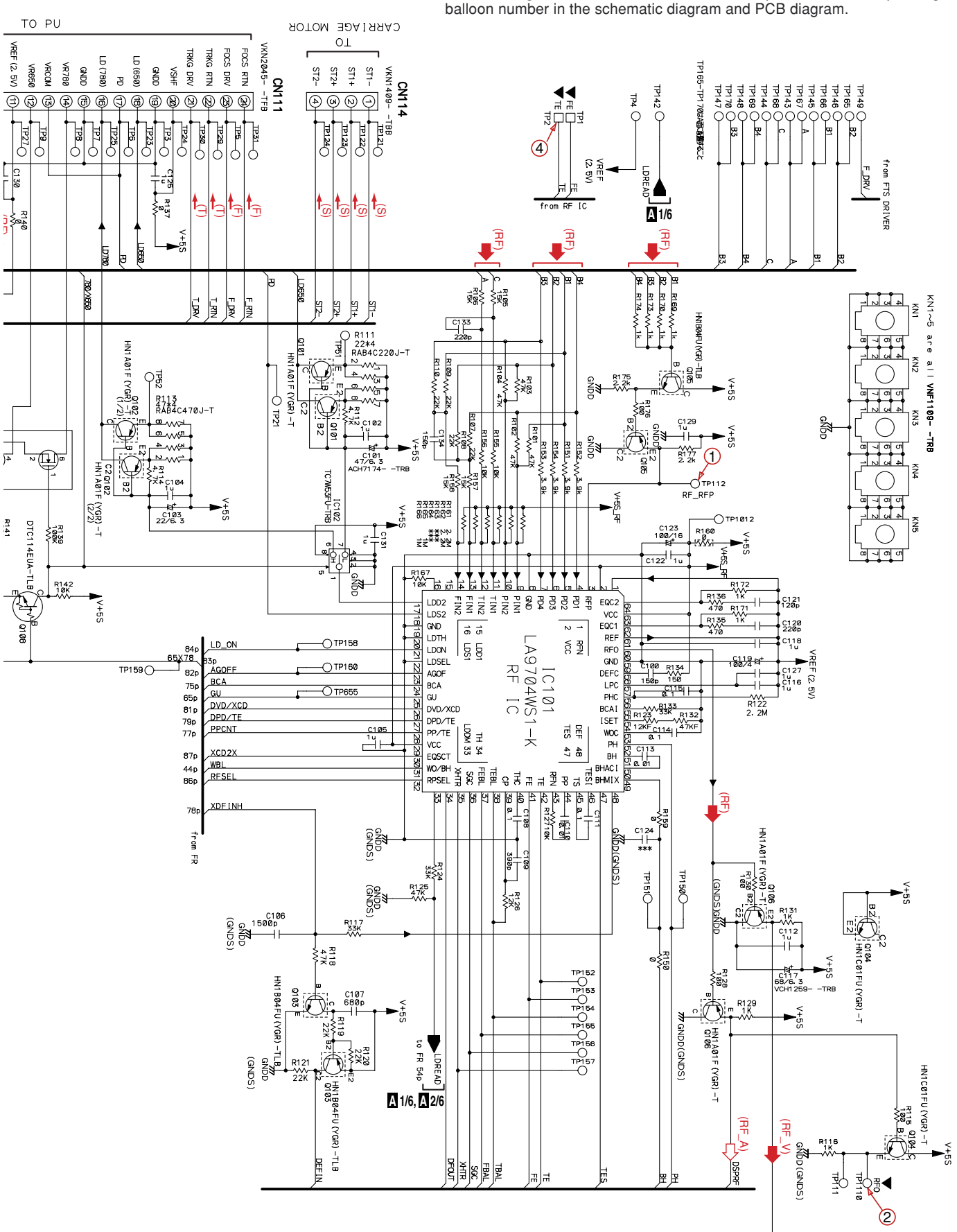
A 1/6 DVDM ASSY (DWS1364) (1/2)

Large size SCH diagram

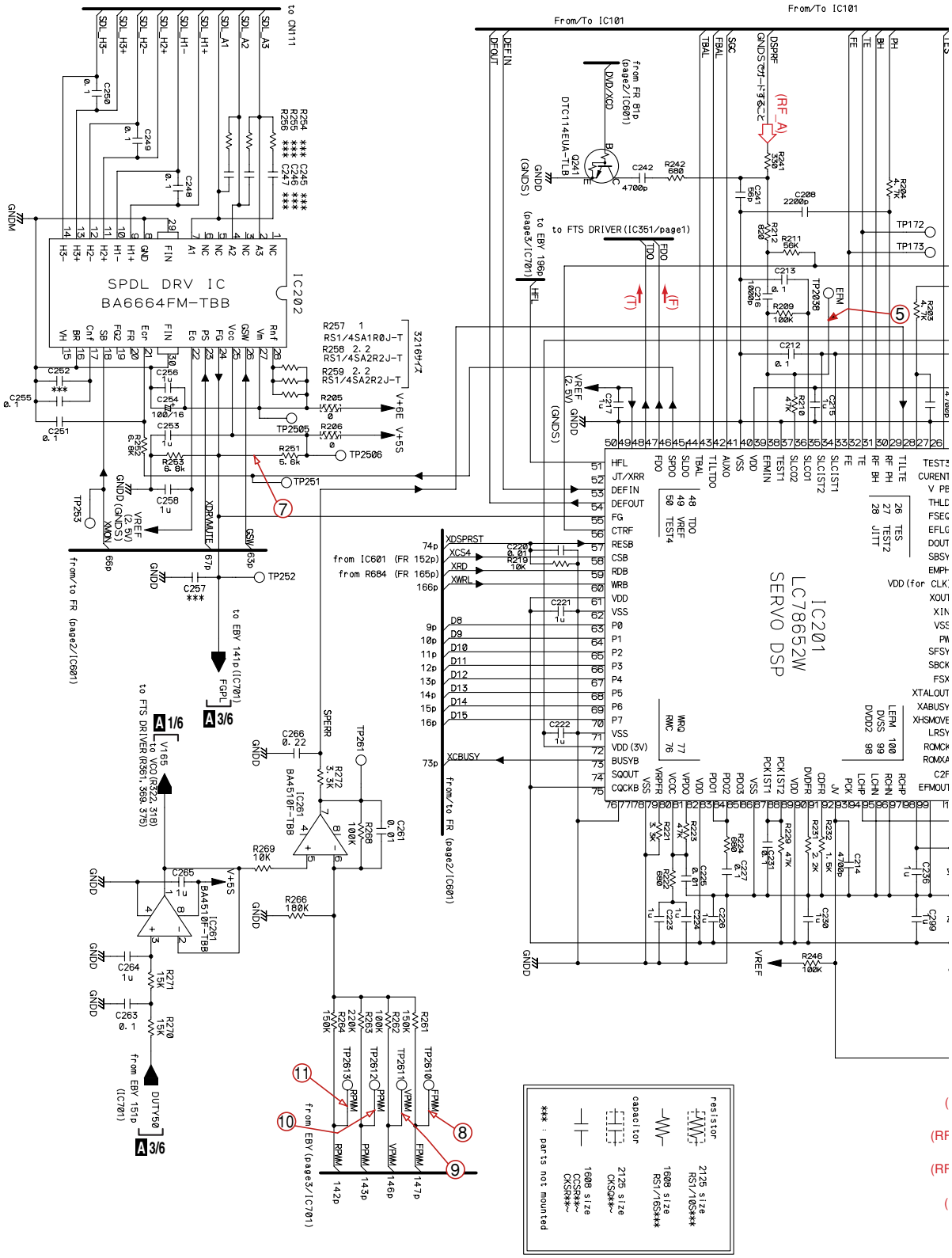




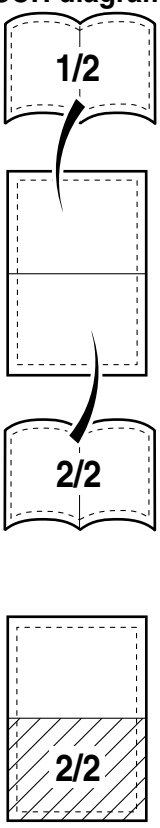
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.



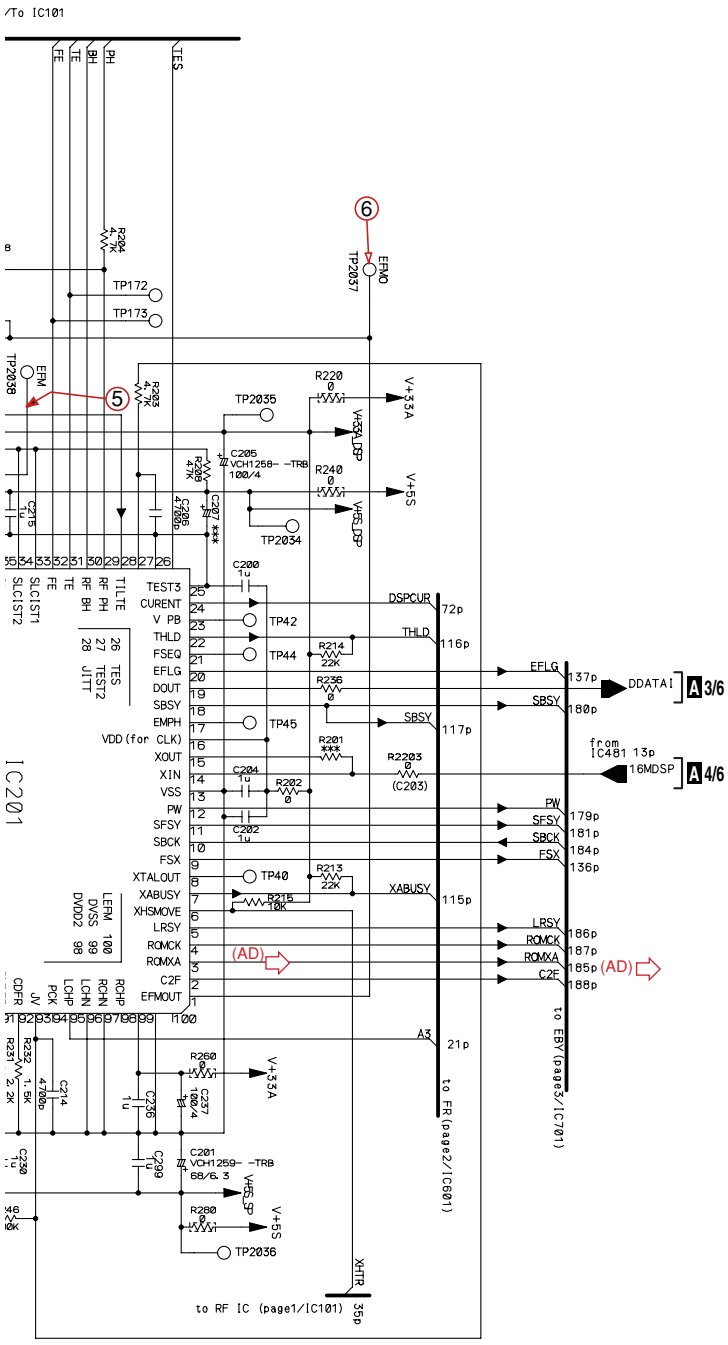
A 1/6 DVDM ASSY (DWS1364) (2/2)

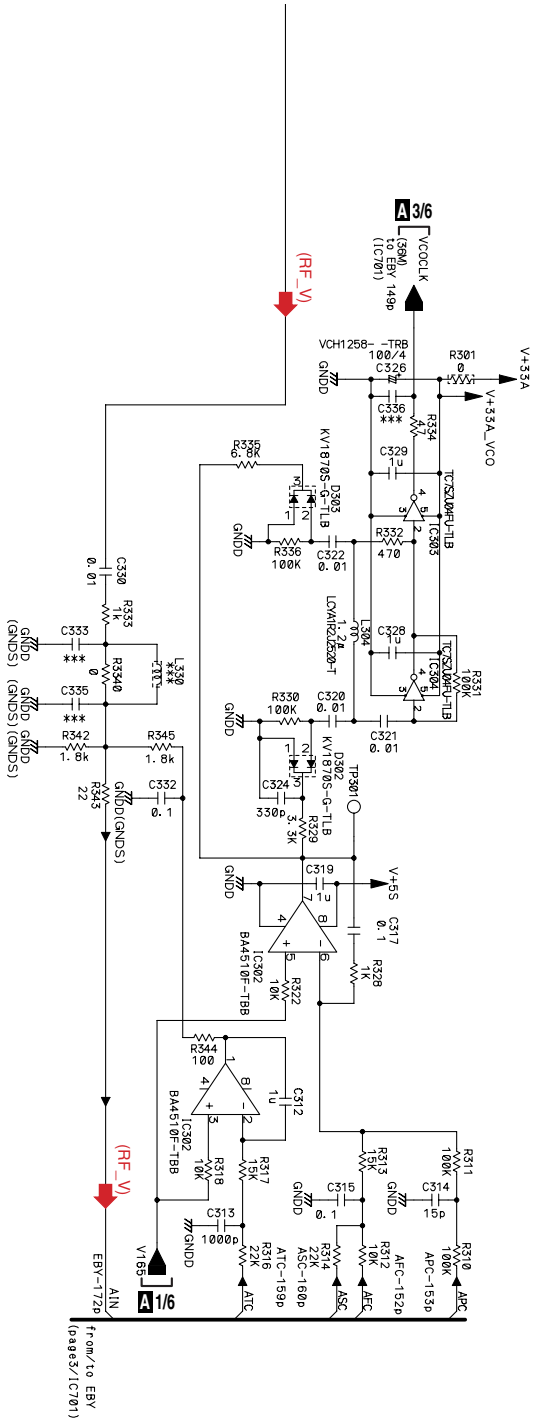


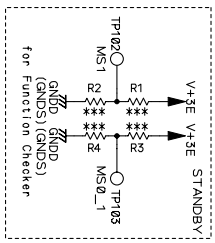
Large size SCH diagram



NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.







(RF) : RF SIGNAL ROUTE

(RF_V) : RF (VIDEO) SIGNAL ROUTE

(RF_A) : RF (AUDIO) SIGNAL ROUTE

(AD) : AUDIO DATA SIGNAL ROUTE

(F) : FOCUS SERVO LOOP LINE

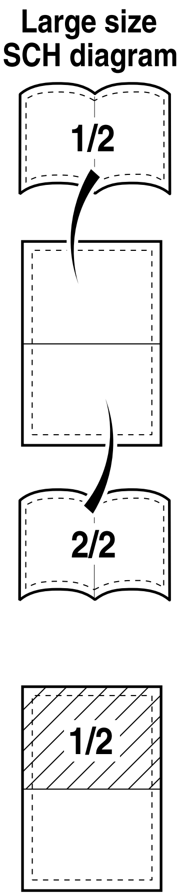
(T) : TRACKING SERVO LOOP LINE

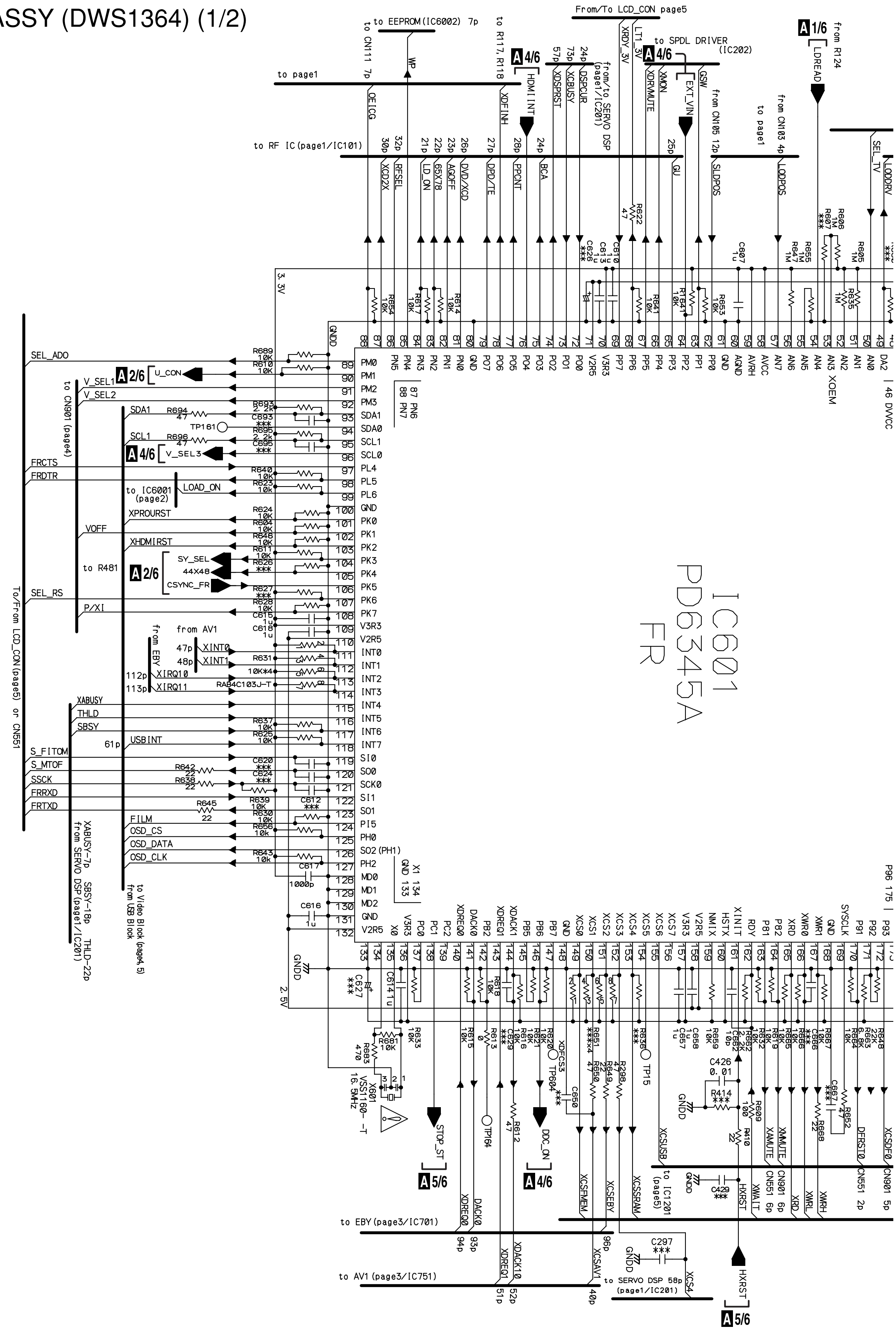
(S) : STEPPING SERVO LOOP LINE

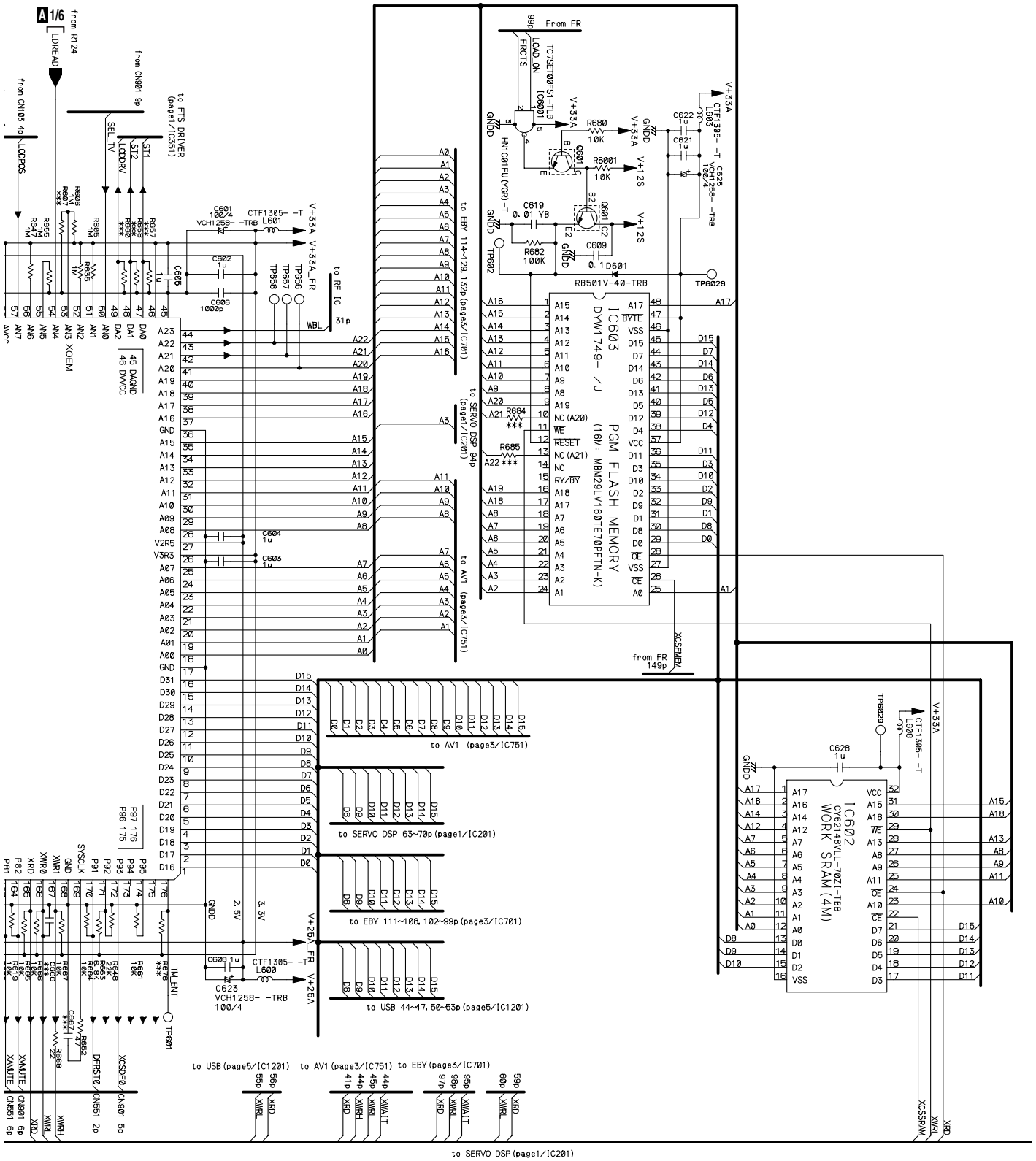
A 1/6

3.4 DVDM ASSY 2/6 [FR BLOCK]

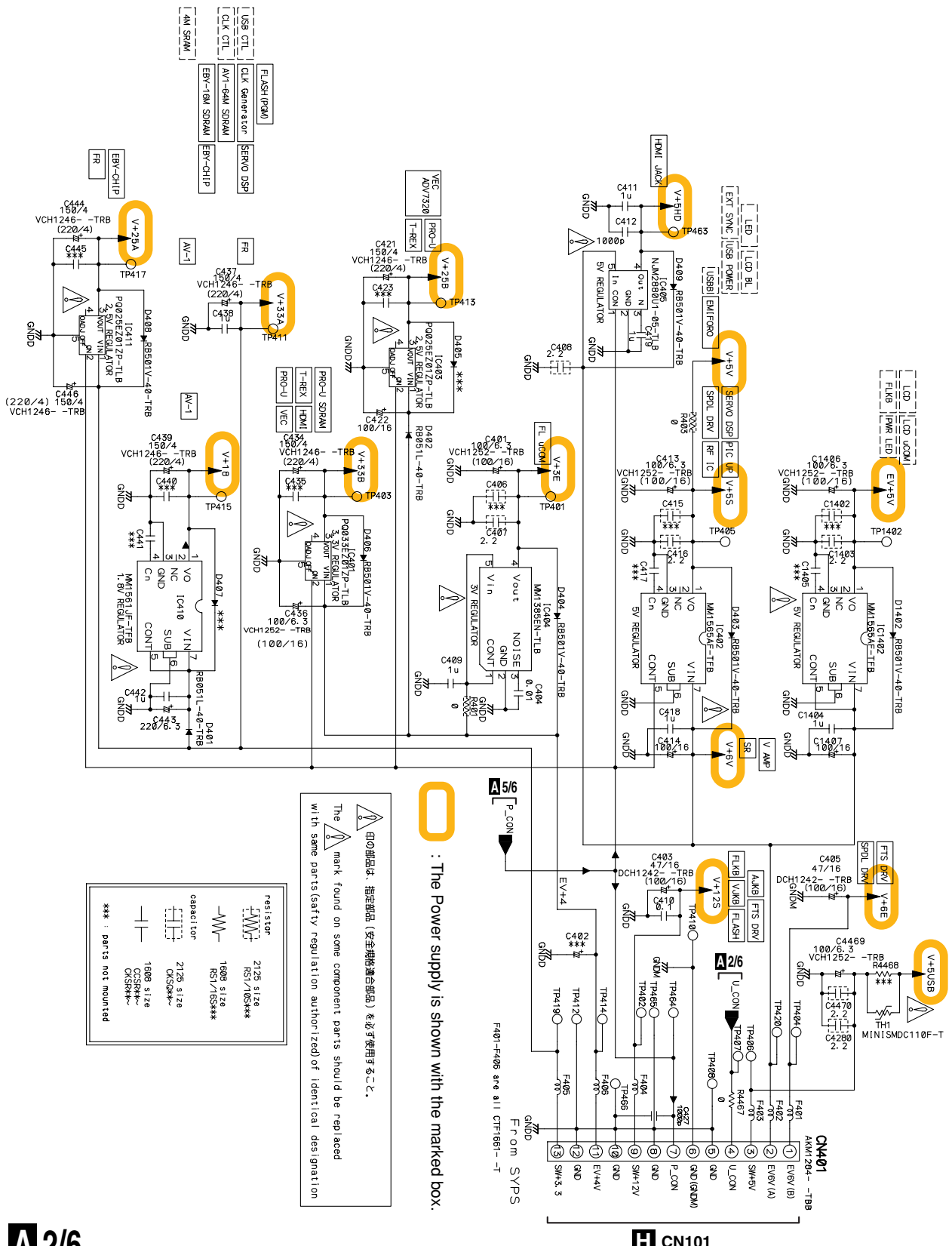
A 2/6 DVDM ASSY (DWS1364) (1/2)

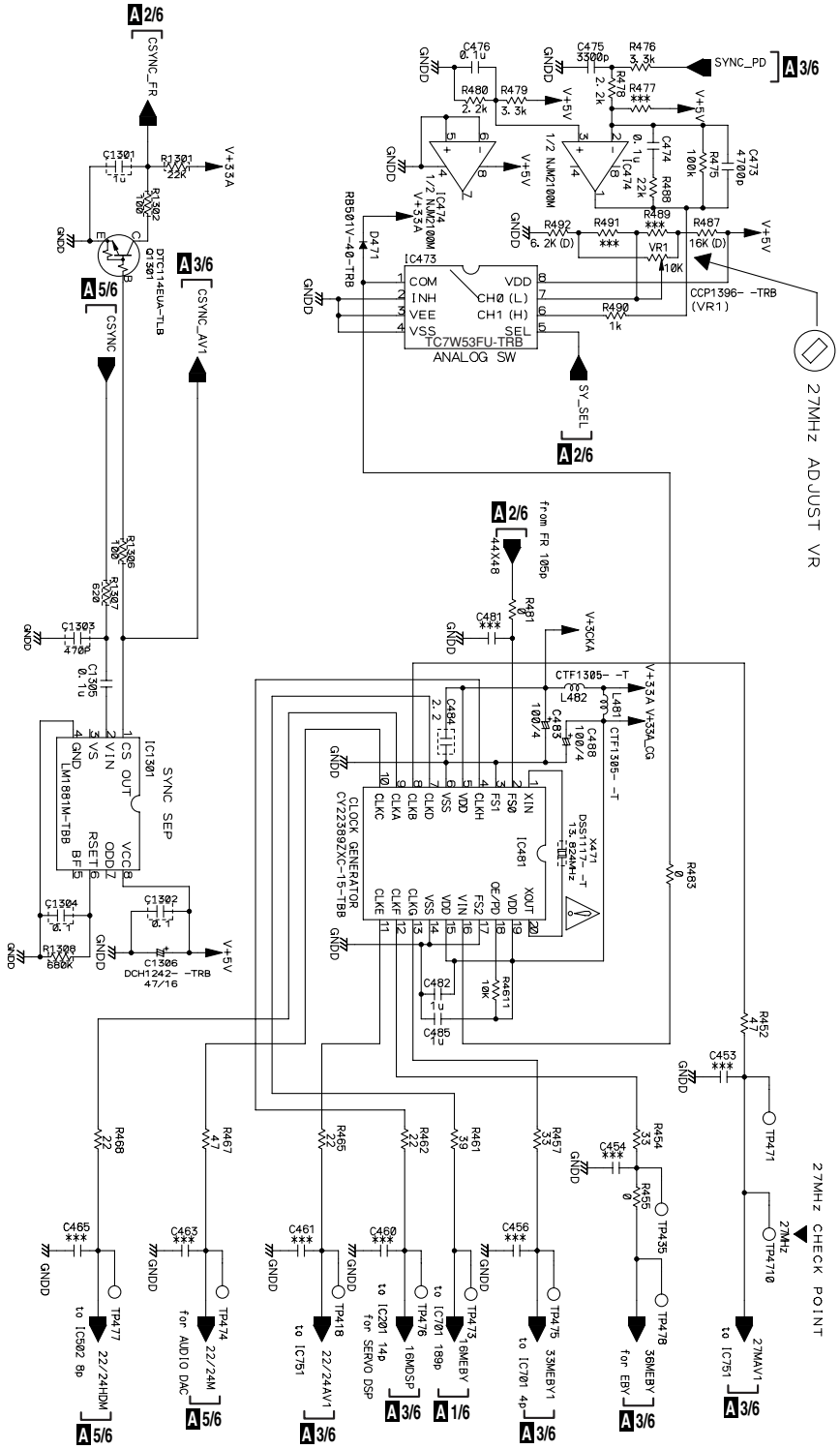




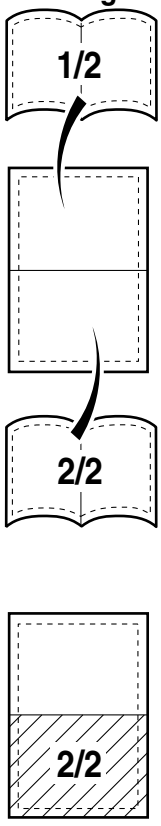

IC603
DYW1749- /J
PGM FLASH MEMORY
(16M MBM29LV160TE70PFTN-K)
IC602
CY62148VLL-70ZI-TBB
WORK SRAM(4M)
HN1C01FU(VGR)-T
TC7SET00FS1-TLB
RB501V-40-TRB
From FR
from R124
from CN001 9p
from CN103 4p
to FTS DRIVER (page1/IC351)
to RF IC
to SERVO DSP 94p (page1/IC201)
to AV1 (page3/IC751)
to EBY 114~128, 132p (page3/IC701)
to SERVO DSP 63~70p (page1/IC201)
to EBY 111~108, 102~99p (page3/IC701)
to USB 44~47, 50~53p (page5/IC1201)
to USB (page5/IC1201)
to AV1 (page3/IC751)
to EBY (page3/IC701)
to SERVO DSP (page1/IC201)
from FR 149p
V+33A
V+12S
V+25A
2.5V
3.3V
GNDD
AVCC
DVCC
XCSSRAM
XCSDFB
XWAIT
XWRL
XRD

A 2/6 DVDM ASSY (DWS1364) (2/2)





Large size SCH diagram

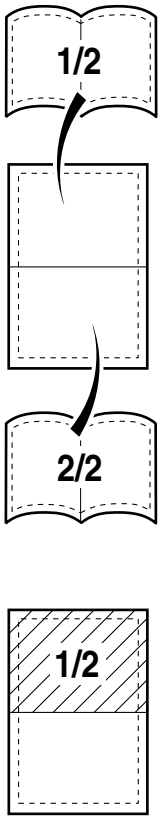


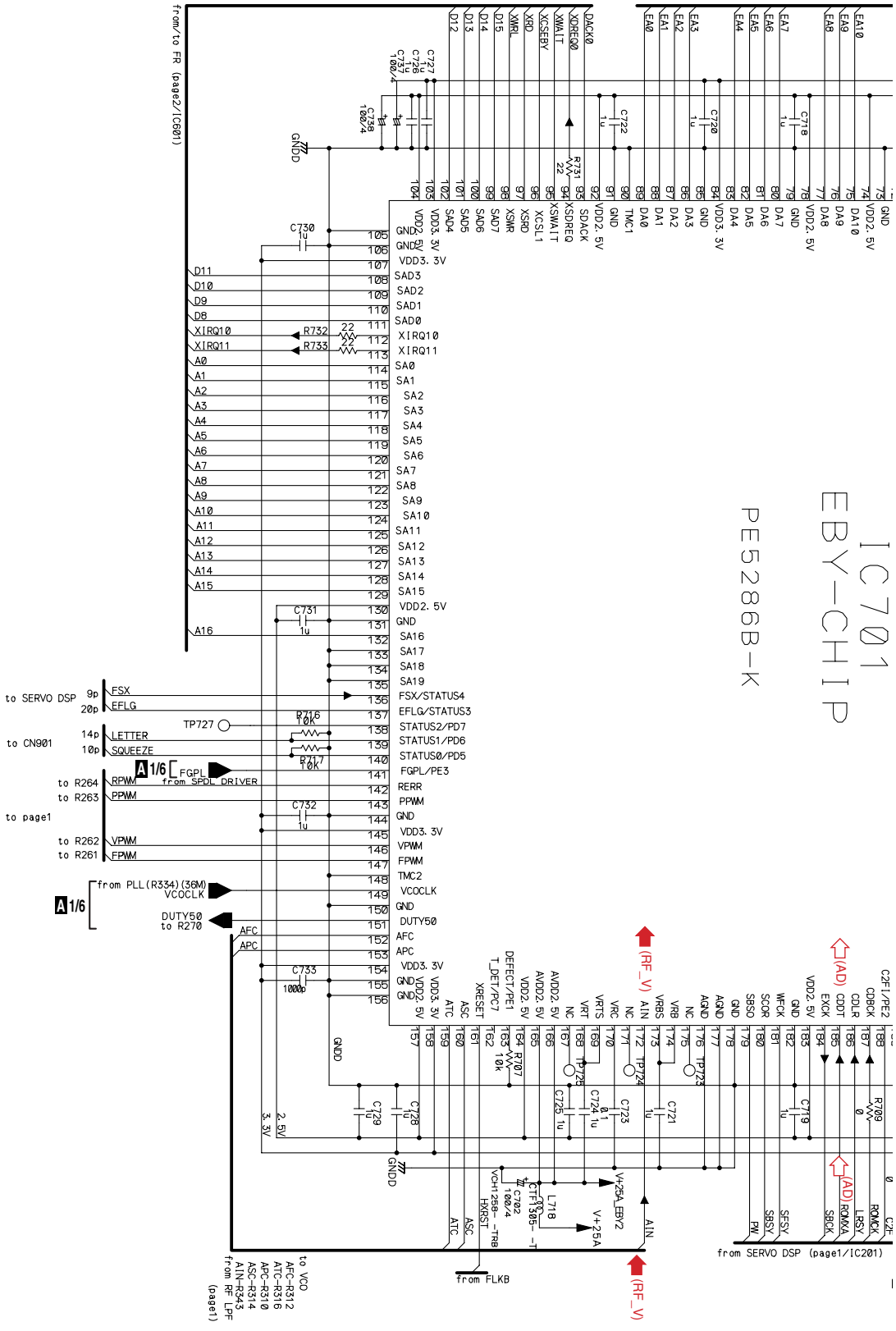
A 2/6

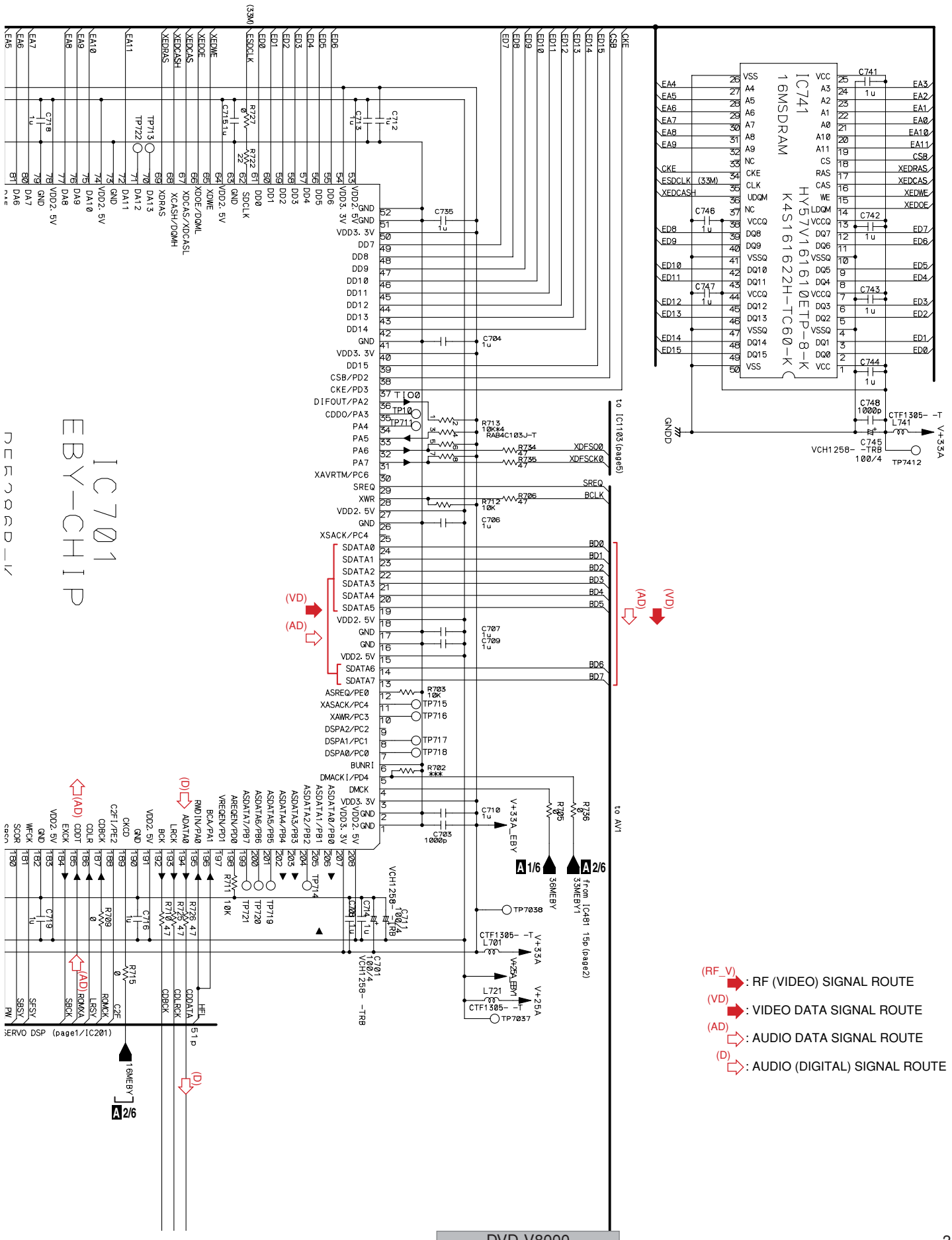
3.5 DVDM ASSY 3/6 [EBY/AV1 BLOCK]

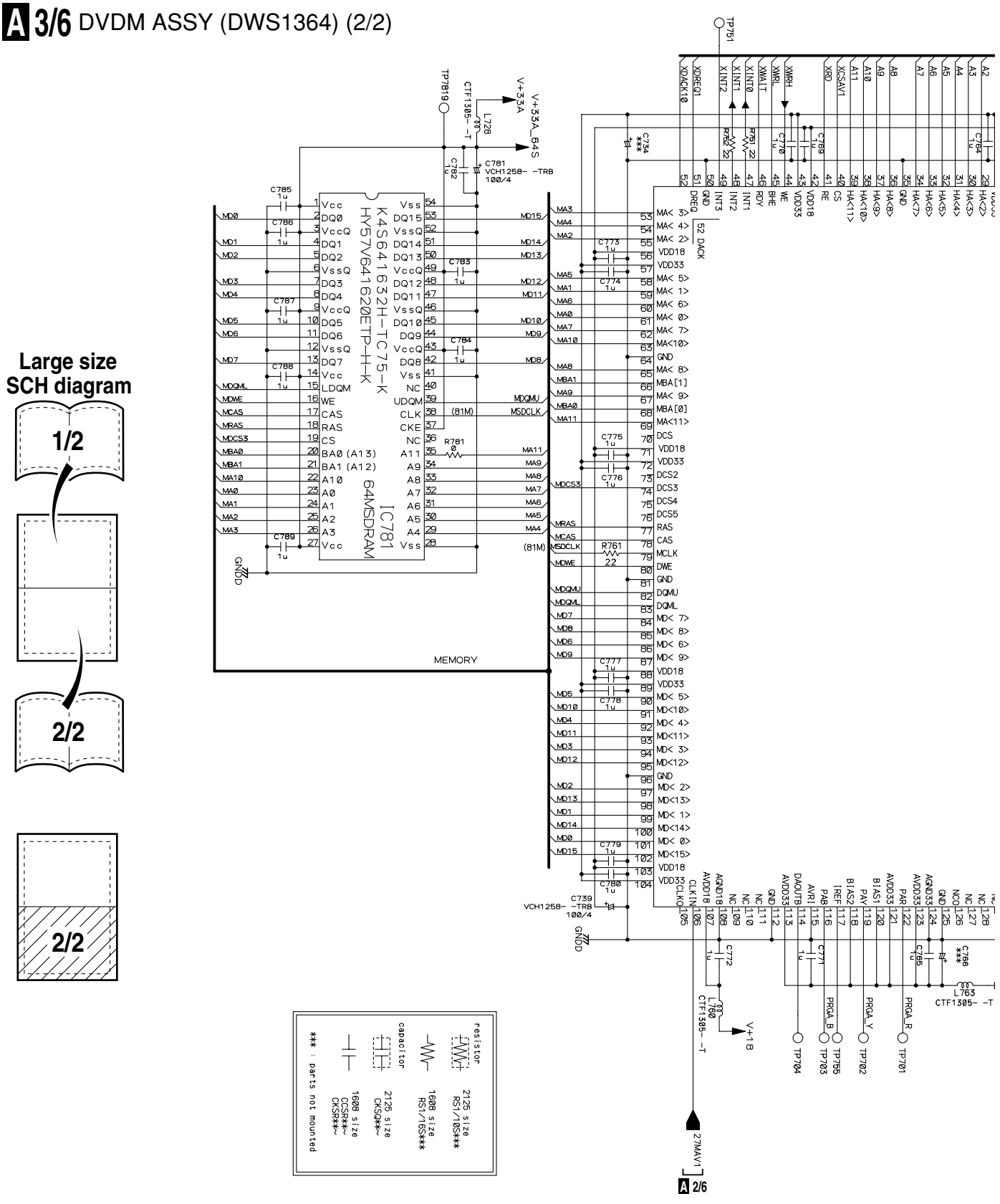
A 3/6 DVDM ASSY (DWS1364) (1/2)

Large size SCH diagram






IC701
EBY-CHIP
DEC2GRD-1K
IC741
16MSDRAM
HY57V161610ETP-8-K
K4S161622H-TC60-K
(RF_V): RF (VIDEO) SIGNAL ROUTE
(VD): VIDEO DATA SIGNAL ROUTE
(AD): AUDIO DATA SIGNAL ROUTE
(D): AUDIO (DIGITAL) SIGNAL ROUTE

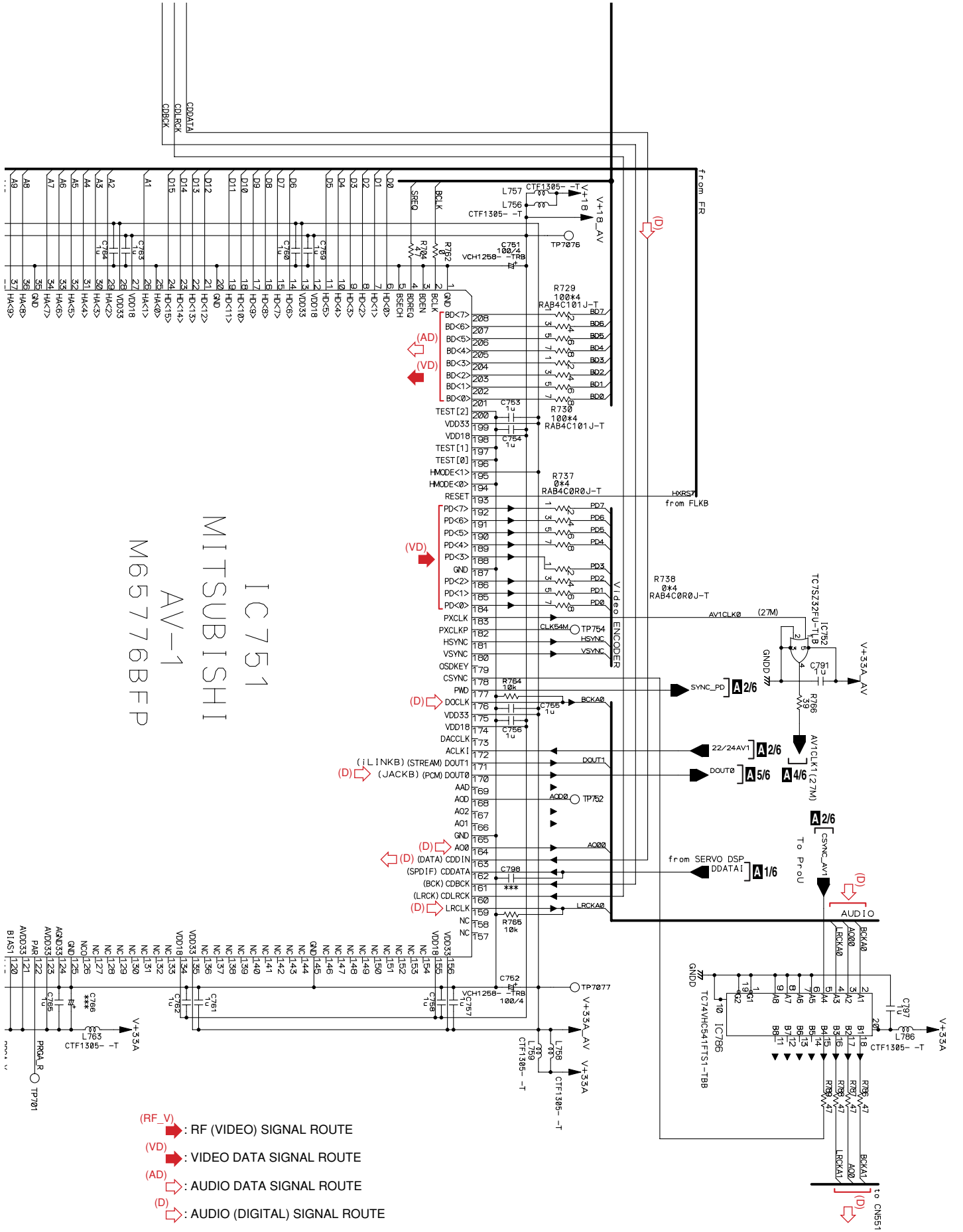


A 3/6 DVDM ASSY (DWS1364) (2/2)

resistor	2125 size RS1/10S***
	1608 size RS1/16S***
capacitor	2125 size CKSQ**~
	1608 size CCSR**~ CKSR**~

*** : parts not mounted

Large size SCH diagram


IC751
MITSUBISHI
AV-1
M65776BFP
(RF_V) : RF (VIDEO) SIGNAL ROUTE
(VD) : VIDEO DATA SIGNAL ROUTE
(AD) : AUDIO DATA SIGNAL ROUTE
(D) : AUDIO (DIGITAL) SIGNAL ROUTE
Video ENCODER
from FR
from FLKB
from SERVO DSP
To ProU
to CN551
AUDIO
A 3/6

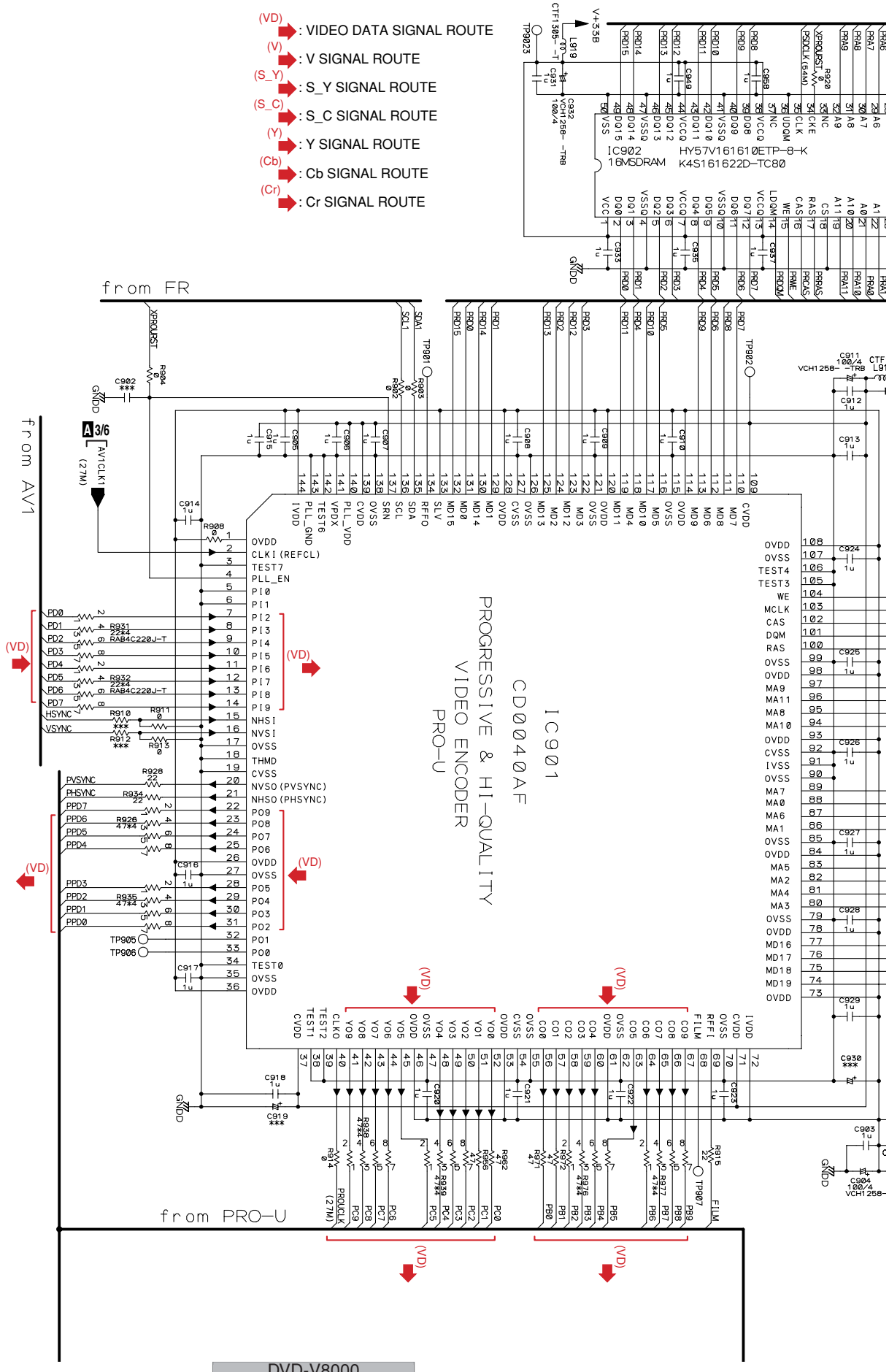
3.6 DVDM ASSY 4/6 [VIDEO BLOCK]

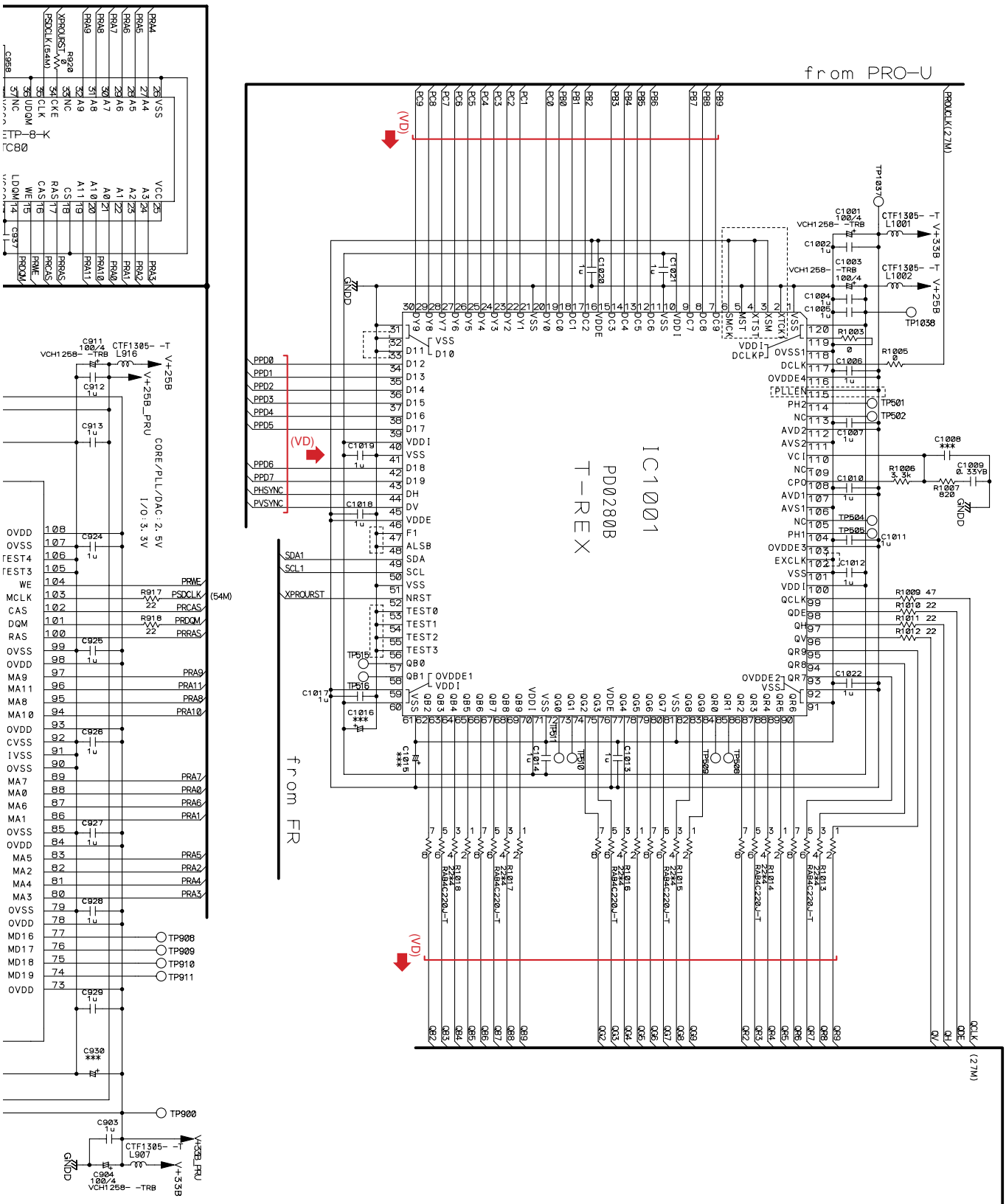
A 4/6 DVDM ASSY (DWS1364) (1/2)

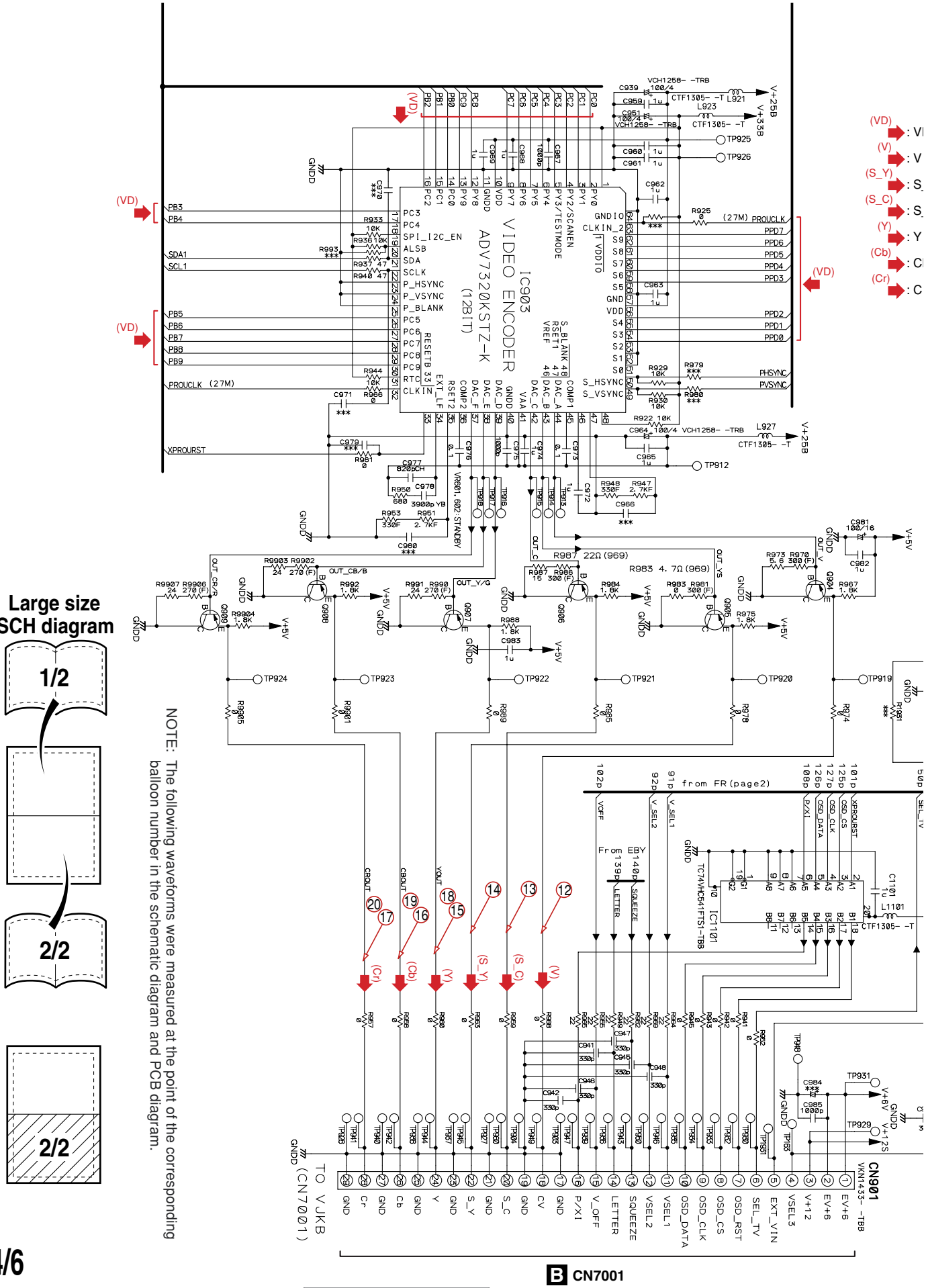
(VD) : VIDEO DATA SIGNAL ROUTE
(V) : V SIGNAL ROUTE
(S_Y) : S_Y SIGNAL ROUTE
(S_C) : S_C SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(Cb) : Cb SIGNAL ROUTE
(Cr) : Cr SIGNAL ROUTE

Large size SCH diagram

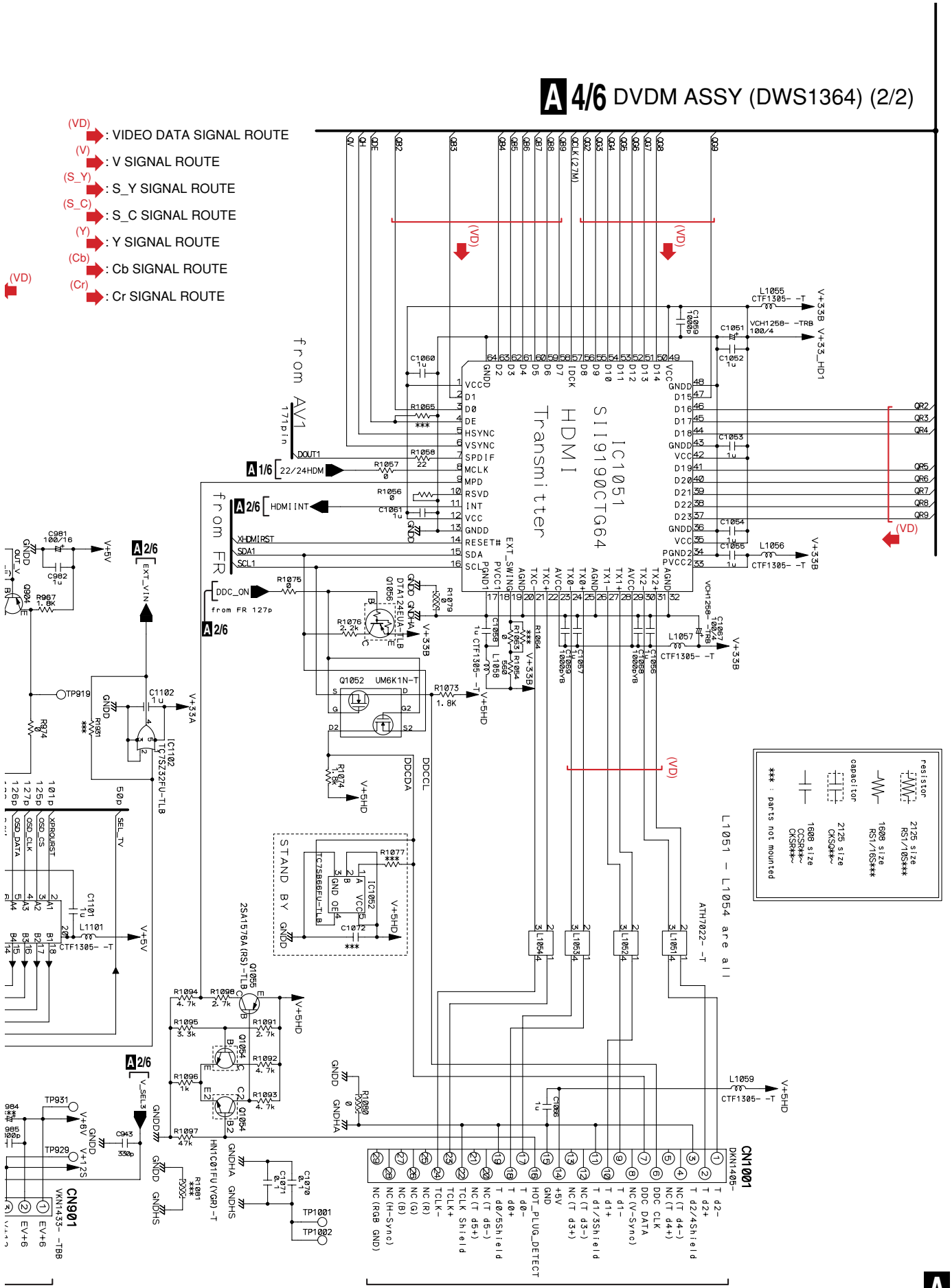
1/2
2/2
1/2




from PRO-U
IC1001
PD0280B
T-REX
from FR
CORE/PLL/DAC: 2.5V
I/O: 3.3V
(VD)
(54M)
(27M)
GNDD
V+25B
V+33B
V+25B_PRU
V+33B_PRU
CTF1305- -T
VCH1258- -TRB
TP900
TP908
TP909
TP910
TP911


Large size SCH diagram
1/2
2/2
2/2
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.
IC903 VIDEO ENCODER ADV7320KSTZ-K (12BIT)
CN901
TO VJKB (CN7001)
B CN7001
A 4/6

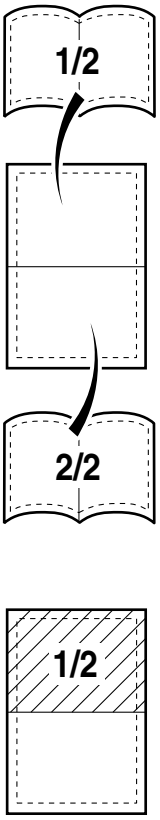
A 4/6 DVDM ASSY (DWS1364) (2/2)

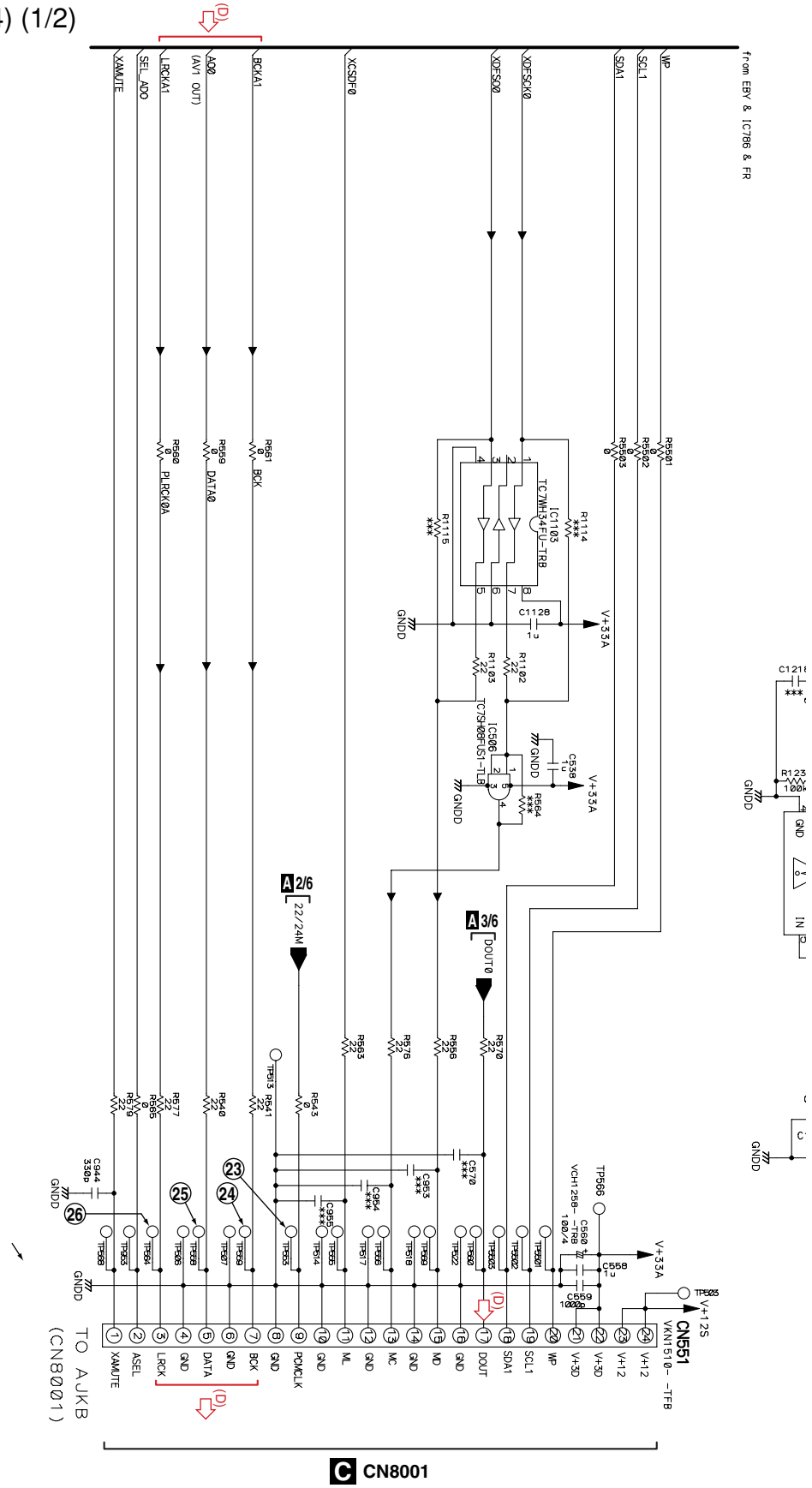


3.7 DVDM ASSY 5/6 [USB/SUBCPU BLOCK]

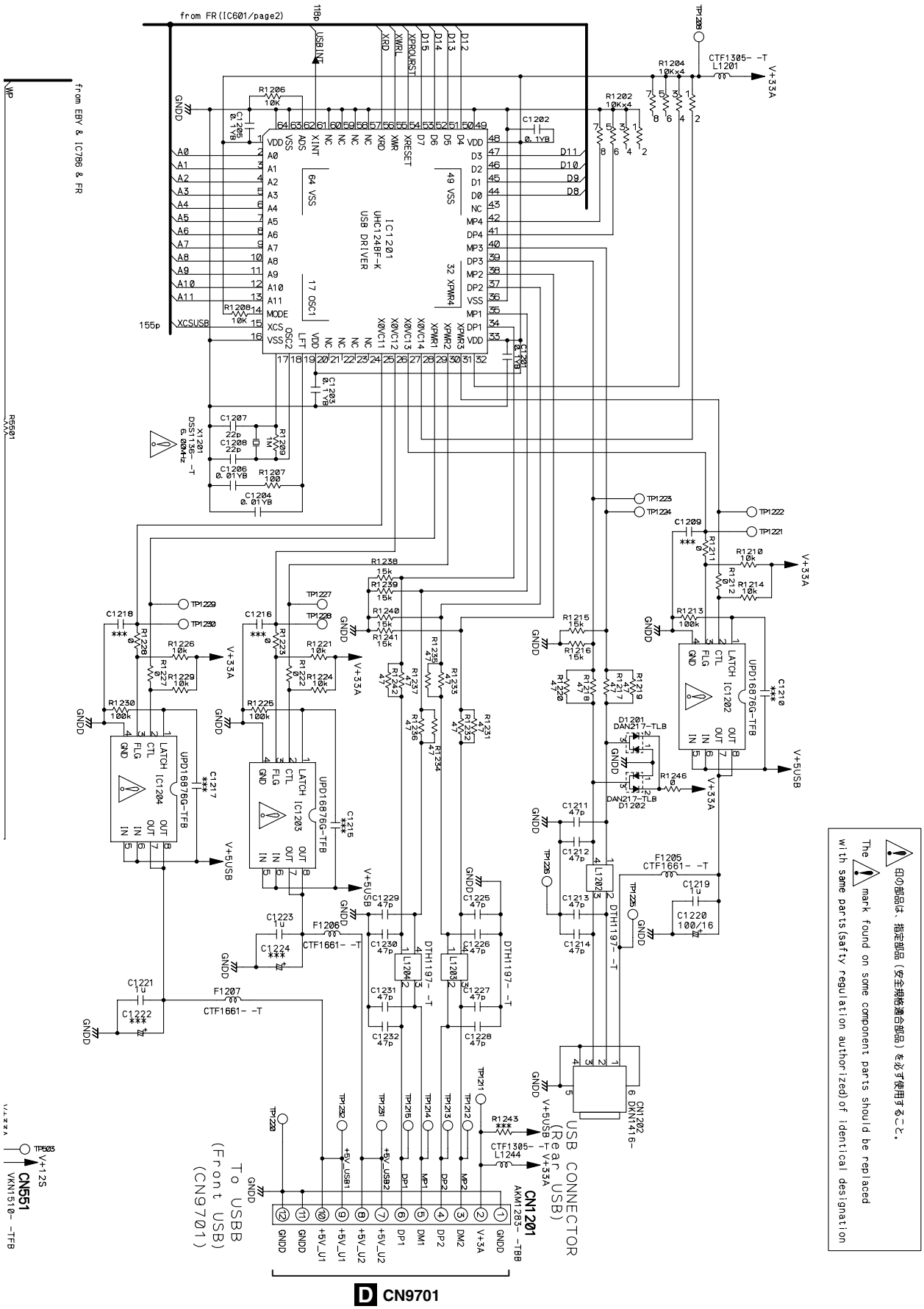
A 5/6 DVDM ASSY (DWS1364) (1/2)

Large size SCH diagram





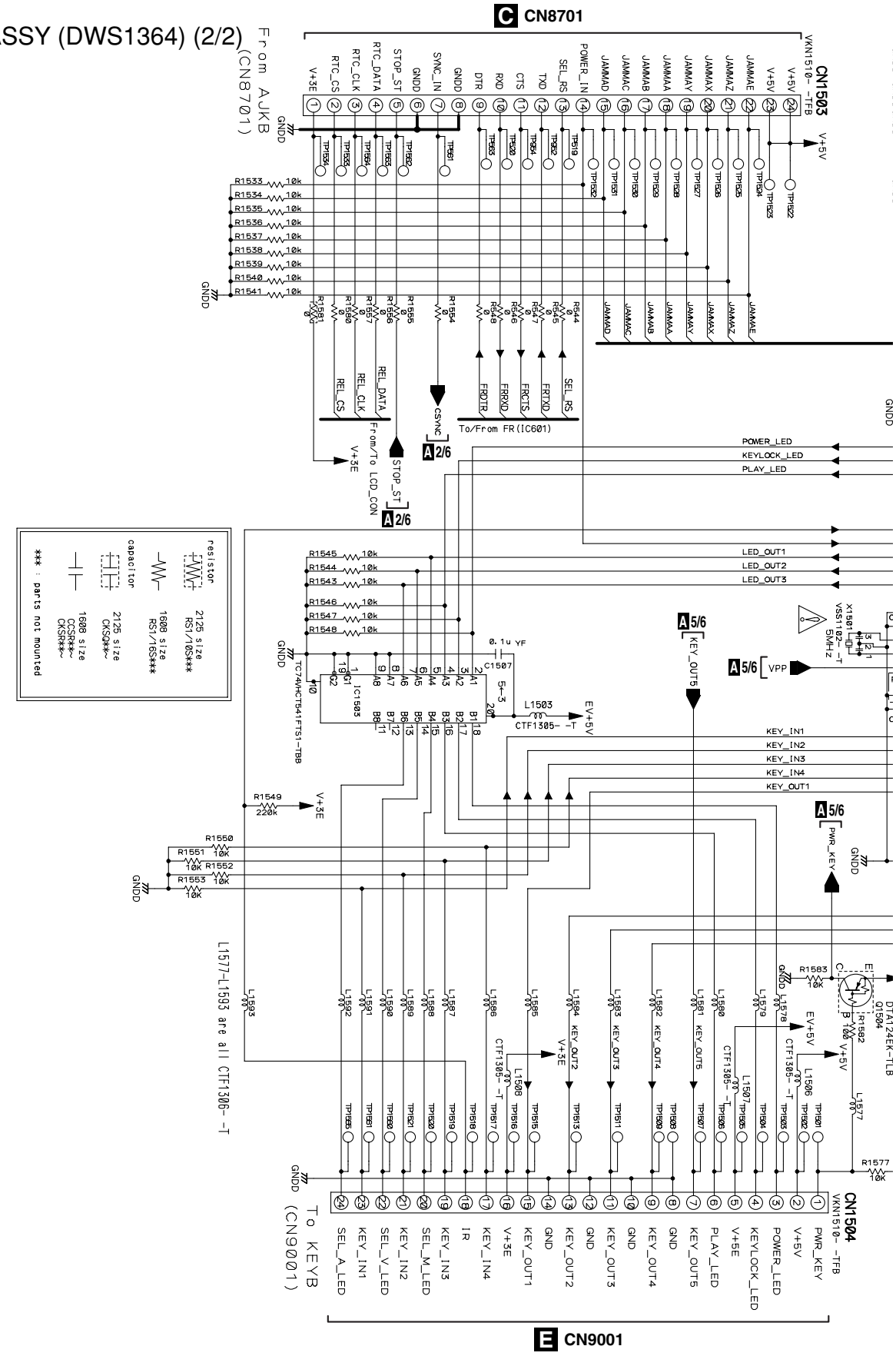
(D) ⇨ : AUDIO (DIGITAL) SIGNAL ROUTE



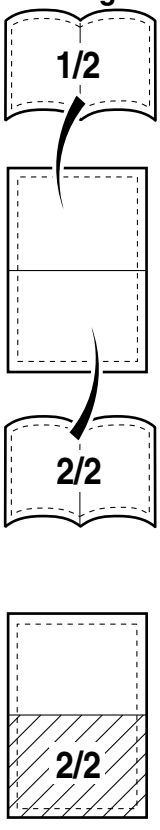
印の部品は、指定部品（安全規格適合部品）を必ず使用すること。

The ⚠ mark found on some component parts should be replaced with same parts(safty regulation authorized) of identical designation

A 5/6 DVDM ASSY (DWS1364) (2/2)



Large size SCH diagram

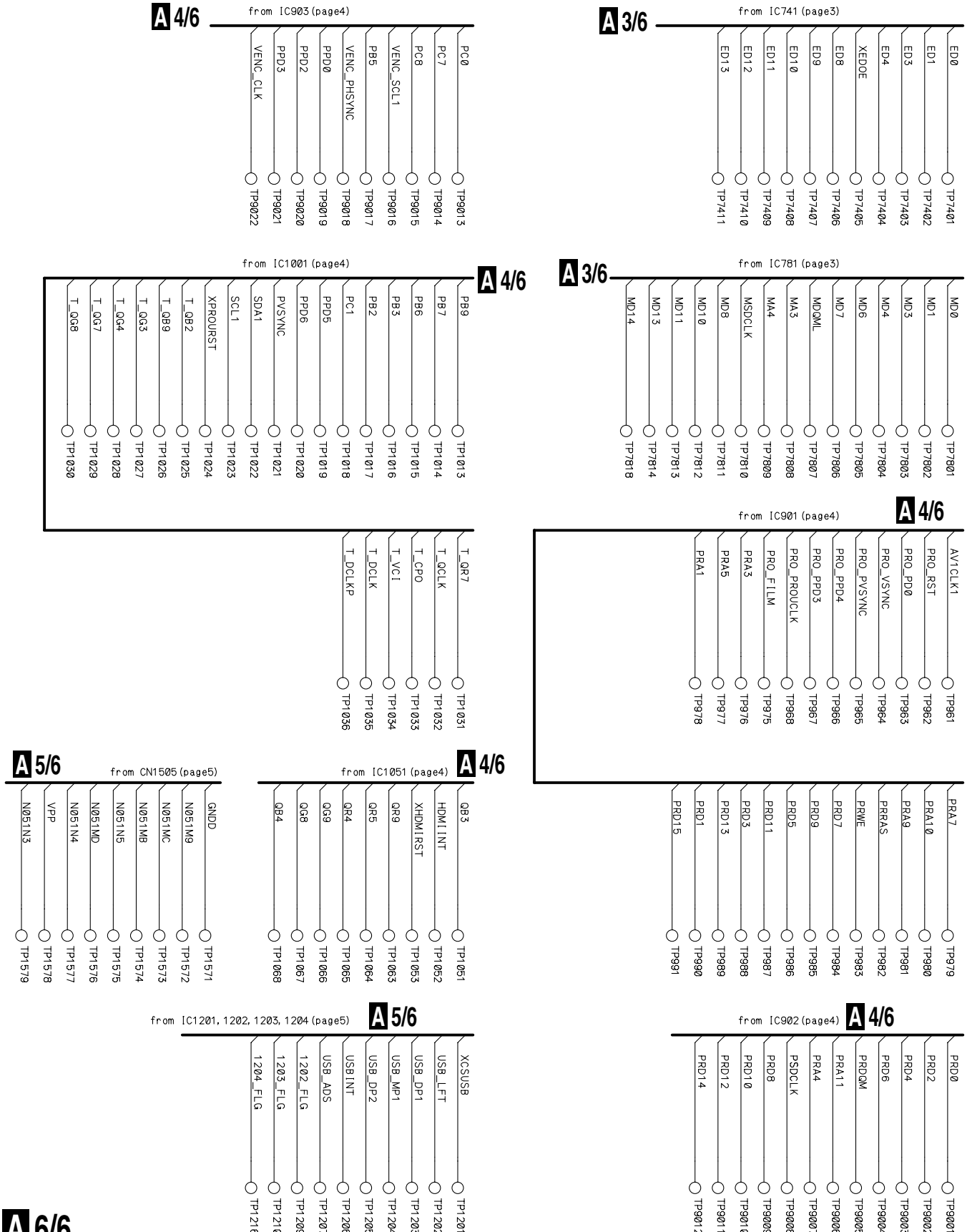


A 5/6

CN1503
VKN1510- -TFB
CN1505
For Download
STANDBY
IC1501
R1510
R1511
R1512
R1513
D1501
CN1505
Flash
Mask
Not Use
0Ω
1SS355
VKN1935
IC1505
PST3228-TLB
D1510
D1502
D1505
R1515
R1516
10k
VPP
XRESET
CKF
SIF
SOF
GND
V+3E
V+5V
GNDD
A5/6
A2/6
A9/6
P_CON
FXRST
IC1502
TC74VHCT541FTS1-TBB
L1502
CTF1305- -T
R1504
R1503
R1505
EV+5V
R1560
R1558
R1561
R1559
R1564
R1562
R1565
R1563
R1501
R1509
R1506
R1518
PWR_KEY
KEY_OUT5
XLCDON
XBRIGHT
IC1501
PE5557B-K
LCD CONTROL MICROCOMPUTER
X1501
VSS1102- -T
5MHz
C1505
R1566
C1506
VPP
KEY_IN1
KEY_IN2
KEY_IN3
KEY_IN4
KEY_OUT1
L1501
CTF1305- -T
IC1504
TC74LCX245FTS1-TBB
L1504
CTF1305- -T
R1523
R1519
R1524
R1520
R1525
R1521
R1526
R1522
From/To REAL-TIME CLK
REL_CLK
REL_DATA
REL_CS
R1502
47K
DTC124EK-TLB
Q1507
Q1508
D1508
1SS355-TRB
D1509
D1506
R1584
2.2K
R1507
C1509
0.1
D1511
R1587
1.2K
R1585
10K
Q1505
2SC2412K (QRS) -TLB
C1510
0.1
D1507
R1586
47K
LCD BACKLIGHT CONTROL
IC1506
NJM2904M-TLB
C1508
R1588
R1589
2.2
R1590
2SD1664 (PQR)-TRB
Q1506
R1583
Q1504
DTA124EK-TLB
R1582
R1592
R1591
C1511
0.01
IC1506
NJM2904M-TLB
R1529
R1257
R1530
R1528
R1531
C431
C432
C430
R412
R411
R409
R413
R1593
R1579
R1577
L1577
L1506
L1578
CTF1305- -T
CN1504
VKN1510- -TFB
PWR_KEY
POWER_LED
LCD_VR
From/To FR page2
S_FITOM
S_MTOF
SSCK
XRDY_3V
LT1_3V
L1569
L1570
L1571
L1572
L1573
L1574
L1575
L1576
L1566
L1567
L1568
D1512
UDZS5R6(B)-TRB
L1505
CTF1305- -T
CN1502
AKM1281- -TBB
CN1501
AKM1277- -TBB
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
BLK
BLA
VSS
VDD
VO
RS
R/XW
E
L1569-L1576 are all CTF1306- -T
To LCD Module
DVD-V8000
A5/6
41

3.8 DVDM ASSY 6/6

A 6/6 DVDM ASSY (DWS1364)



A 6/6

A 1/6

from IC101 (page1)

RF_RFP — TP1003
RF_PIN1 — TP1004
RF_PD4 — TP1005
PPCNT — TP1006
XCD2X — TP1007
RF_DEFC — TP1008
RF_RFO — TP1009
RF_EQC1 — TP1010
RF_EQC2 — TP1011

A 1/6

from IC351 (page1)

FTS_IN5+ — TP3501
XDRVMUTE — TP3502
FTS_OUT2 — TP3503
FTS_IN- — TP3504
FTS_IN+ — TP3505

A 1/6

from IC251 (page1)

SPDL_CNF — TP2501
SPDL_EGR — TP2502
GSW — TP2503
SPDL_RNF — TP2504

A 1/6

from IC201 (page1)

PW — TP2017
DSP_XIN — TP2018
DSPCUR — TP2019
TES — TP2020
DSP_TEST2 — TP2021
DSP_SLCO2 — TP2022
DSP_EFMIN — TP2023
DSP_VRPFR — TP2024
XWRL — TP2025
DSP_VPDO — TP2026
DSP_PDO1 — TP2027
DSP_PCKIST1 — TP2028
DSP_DVDFR — TP2029
A3 — TP2030
XCBUSY — TP2031
D8 — TP2032
D15 — TP2033

A 2/6

from IC602, 603, 604 (page2)

A17 — TP6003
A15 — TP6004
XRD — TP6005
XCSFMEM — TP6006
D4 — TP6007
D11 — TP6008
D2 — TP6010

A 3/6

from IC601, 6002 (page2)

A0 — TP6011
A7 — TP6012
A8 — TP6013
A16 — TP6014
XRDY_3V — TP6015
DPD/TE — TP6016
DVD/XCD — TP6017
XPROURST — TP6018
LOAD_ON — TP6019
P/XI — TP6020
XINT0 — TP6021
FR_X0 — TP6022
FR_X1 — TP6023
OSD_CLK — TP6024
FR_XINIT — TP6025
FR_XWR1 — TP6026
WP — TP6030

A 3/6

from IC701 (page3)

EBY_DMCK — TP7004
EBY_PD4 — TP7005
BD6 — TP7006
BD5 — TP7007
EBY_XWR — TP7008
ED15 — TP7009
ED14 — TP7010
ED7 — TP7011
ED6 — TP7012
EBY_SDCLK — TP7013
XEDWE — TP7014
EA11 — TP7015
EA10 — TP7016
EA8 — TP7017
EA7 — TP7018
EA4 — TP7019
EA3 — TP7020
EA0 — TP7021

DACK0 — TP7022
D12 — TP7023
FSX — TP7024
PPWM — TP7025
VPWM — TP7026
FPWM — TP7027
VCOCLK — TP7028
DUTY50 — TP7029
APC — TP7030
ATC — TP7031
EBY_PE1 — TP7032
SFSY — TP7033
SBCK — TP7034
EBY_CKCD — TP7035
EBY_BCK — TP7036

A 3/6

from IC751, 786 (page3)

AV1_BCLK — TP7051
AV1_SREQ — TP7052
D0 — TP7053
D5 — TP7054
D6 — TP7055
A1 — TP7056
A2 — TP7057
XWRH — TP7058
XDREQ1 — TP7059
MA2 — TP7060
MA5 — TP7061
MA10 — TP7062
MA8 — TP7063
MDWE — TP7064
MDQMU — TP7065
MD9 — TP7066
MD5 — TP7067

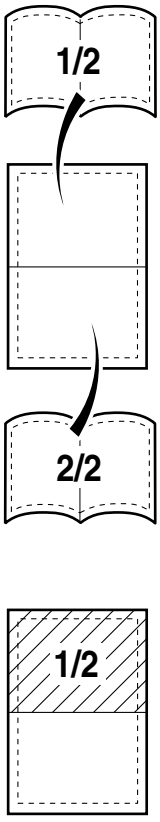
MD12 — TP7068
MD2 — TP7069
MD15 — TP7070
A000 — TP7071
BCKA0 — TP7072
PD2 — TP7073
PD3 — TP7074
AV1_BD0 — TP7075
LRCKA0 — TP7078

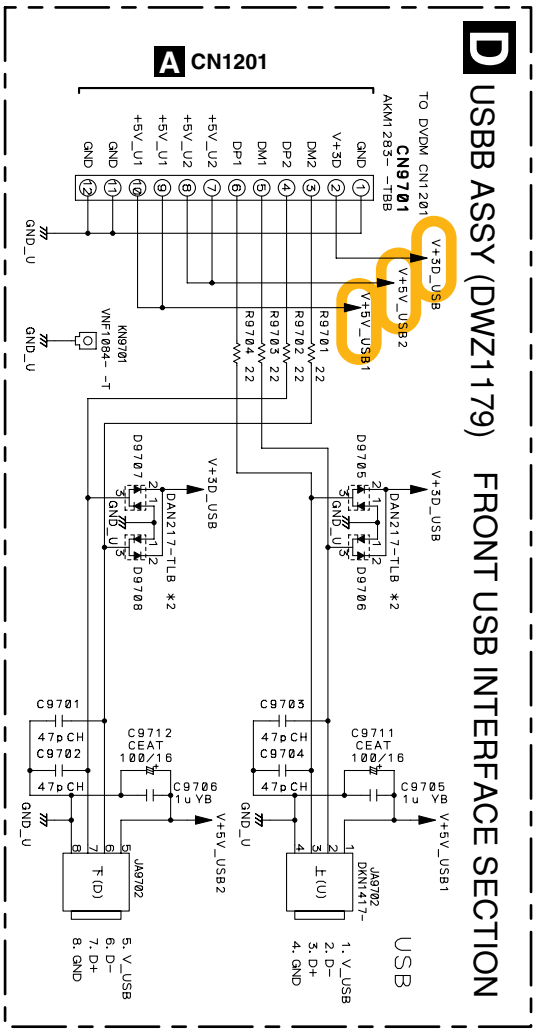
A 6/6

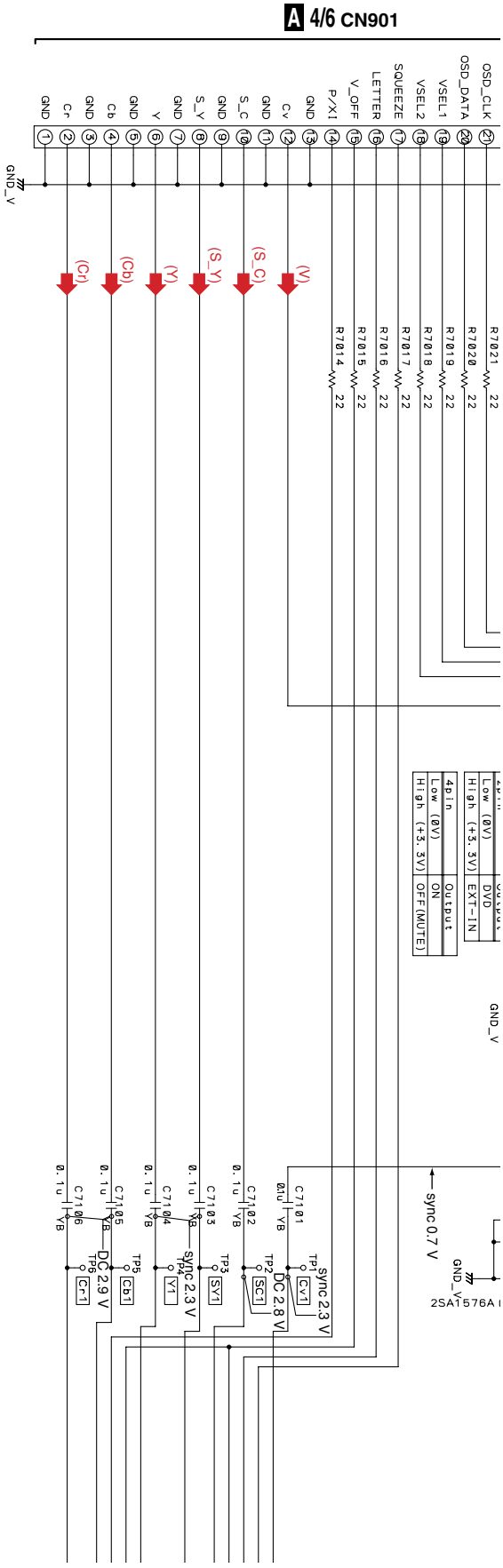
3.9 VJKB and USBB ASSYS

B VJKB ASSY (DWZ1175) (1/2)

Large size SCH diagram







(V) : V SIGNAL ROUTE
(S_Y) : S_Y SIGNAL ROUTE
(S_C) : S_C SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(Cb) : Cb SIGNAL ROUTE
(Cr) : Cr SIGNAL ROUTE
(Ex_V) : Ex_VIDEO SIGNAL ROUTE

R
"R" without instructions
RS1/16S□□□J
□□□F: RS1/10S□□□□F
□□□D: RS1/10S□□□□D

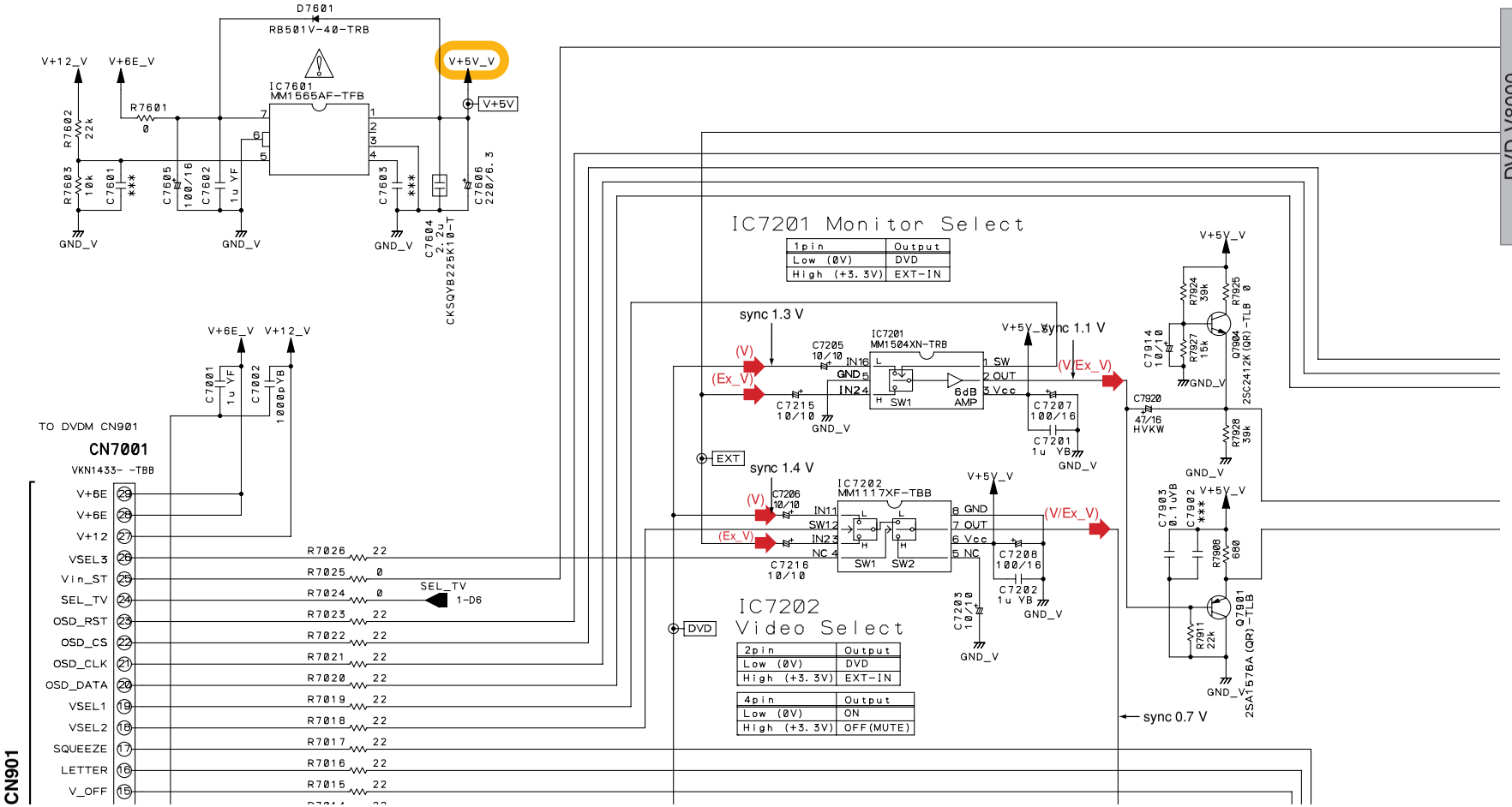
C
"C" is as follows.
YB: CKSRYB□□□
YF: CKSRYF□□□
CH: CCSRCH□□□

CE
"CE" without instructions
CEVW□□□M□□
CEAT: CEAT□□□M□□
HVKW: CEHVKW□□□M□□

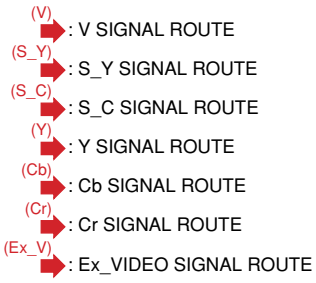
DZ
"DZ" without instructions
UDZS□□□(B)

*** parts not mounted

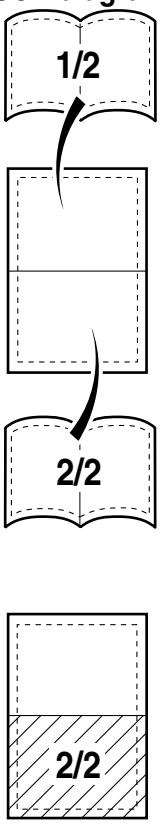
△印の部品は、指定部品（安全規格適合部品）を必ず使用すること。
The △ mark found on some component parts should be replaced with same parts(safty regulation authorized) of identical designation

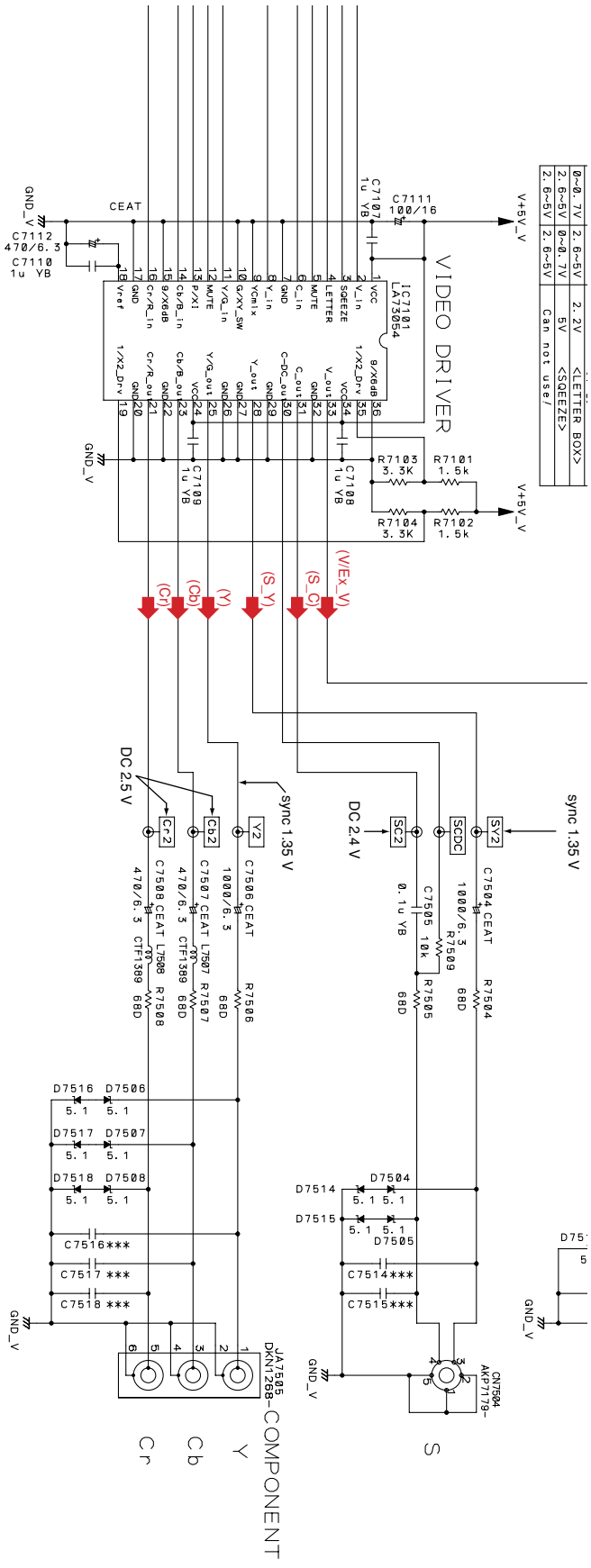


B VJKB ASSY (DWZ1175) (2/2)



Large size SCH diagram





NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.

3.10 AJKB ASSY

C AJKB ASSY (DWZ1176) (1/2)

Large size SCH diagram

1/2

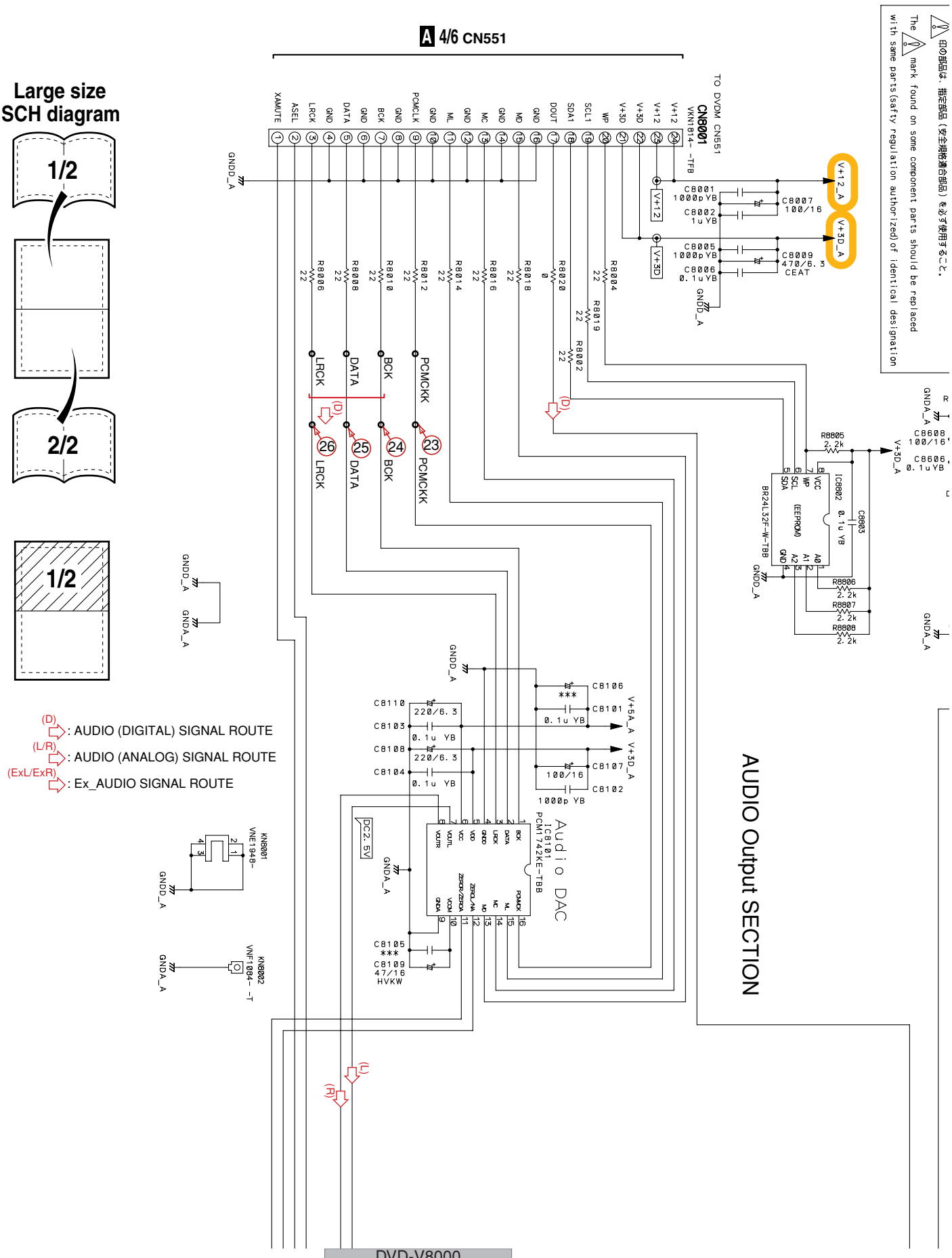
2/2

1/2

(D) : AUDIO (DIGITAL) SIGNAL ROUTE

(L/R) : AUDIO (ANALOG) SIGNAL ROUTE

(ExL/ExR) : Ex_AUDIO SIGNAL ROUTE



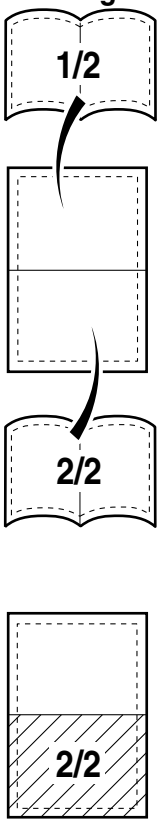
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.

C AJKB ASSY (DWZ1176) (2/2)

(D): AUDIO (DIGITAL) SIGNAL ROUTE
(L/R): AUDIO (ANALOG) SIGNAL ROUTE
(ExL/ExR): Ex_AUDIO SIGNAL ROUTE

MUTE CONFIGRATION						
XAMUTE	L/R_MUTE	ASEL	A_OUT	MUTE		
H	H	L	DVD	OFF		
		H	EXT_IN			
	L	L	DVD	ON		
		H	EXT_IN			
L	H	L	DVD	OFF		
		H	EXT_IN			
	L	L	DVD	ON		
		H	EXT_IN			

Large size SCH diagram



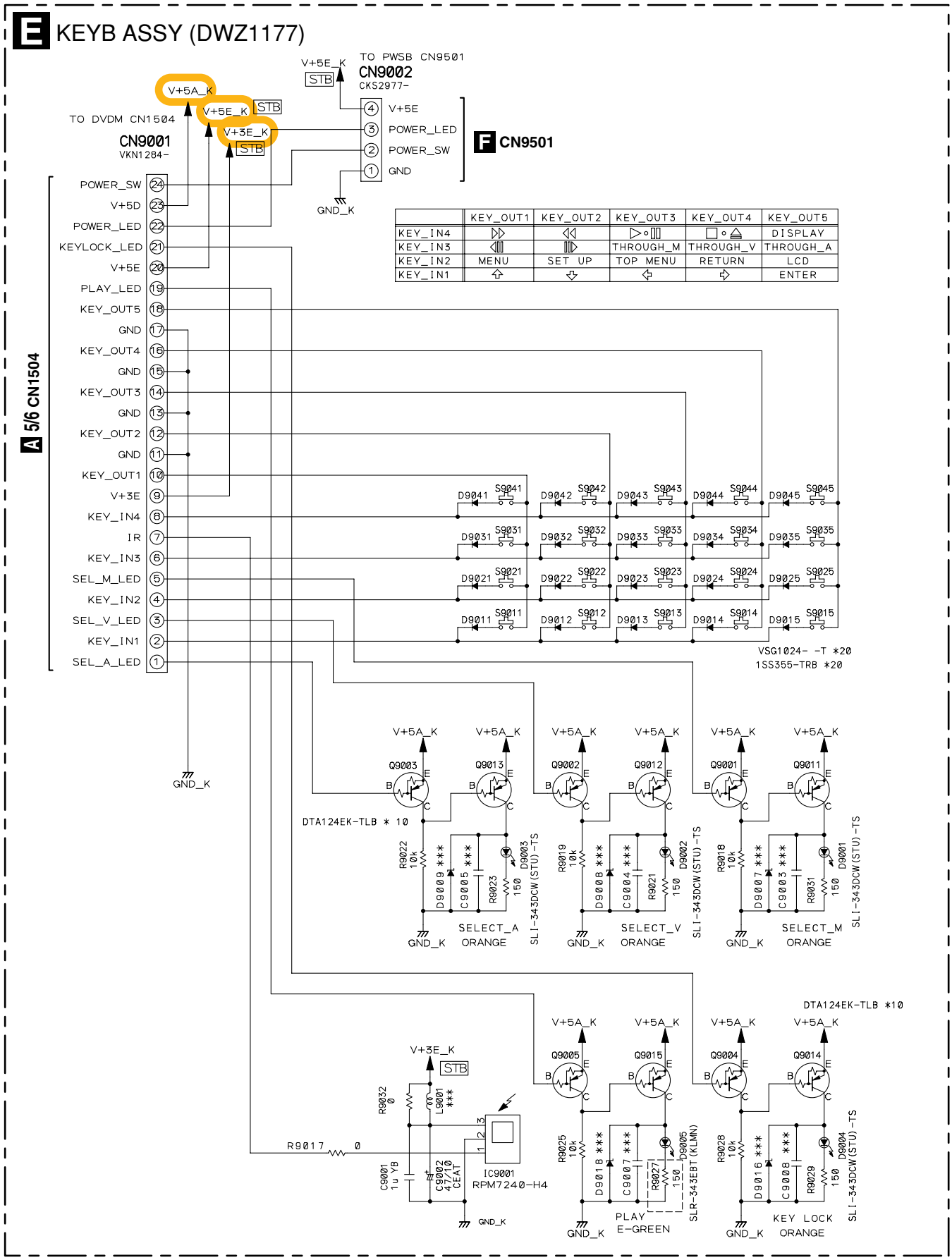
AUDIO OUT

EXT_IN AUDIO

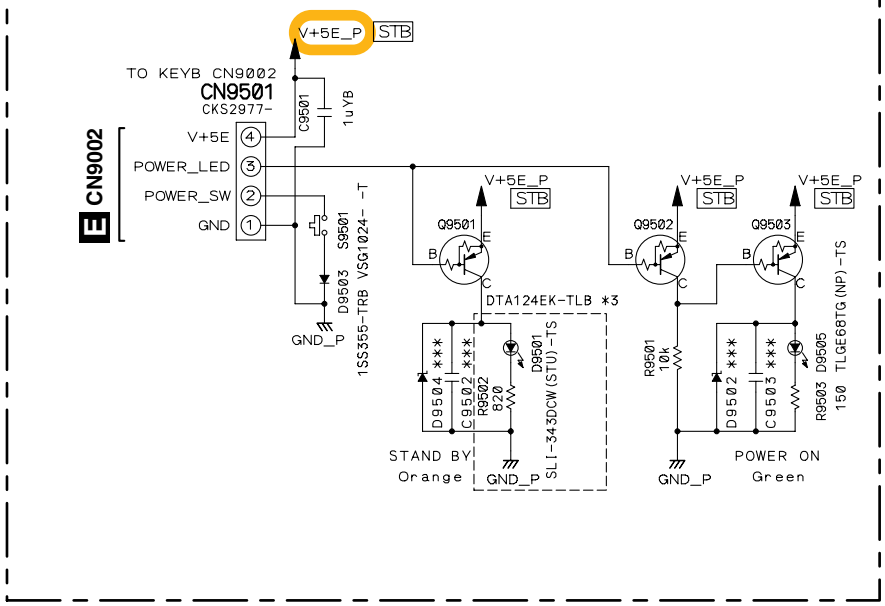
NOTE:

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram and PCB diagram.

3.11 KEYBY and PWSB ASSYS



F PWSB ASSY (DWZ1178)



STB is Ever Voltage
This voltage is supplied at the time of Stand-By & Power-On.

R
"R" without instructions
RS1/16S□□□J
□□□F: RS1/10S□□□□F

C
"C" is as follows.
YB: CKSRYB□□□

CE
"CE" is as follows.
CEAT: CEAT□□□M□□

*** parts not mounted

3.12 SYPS ASSY

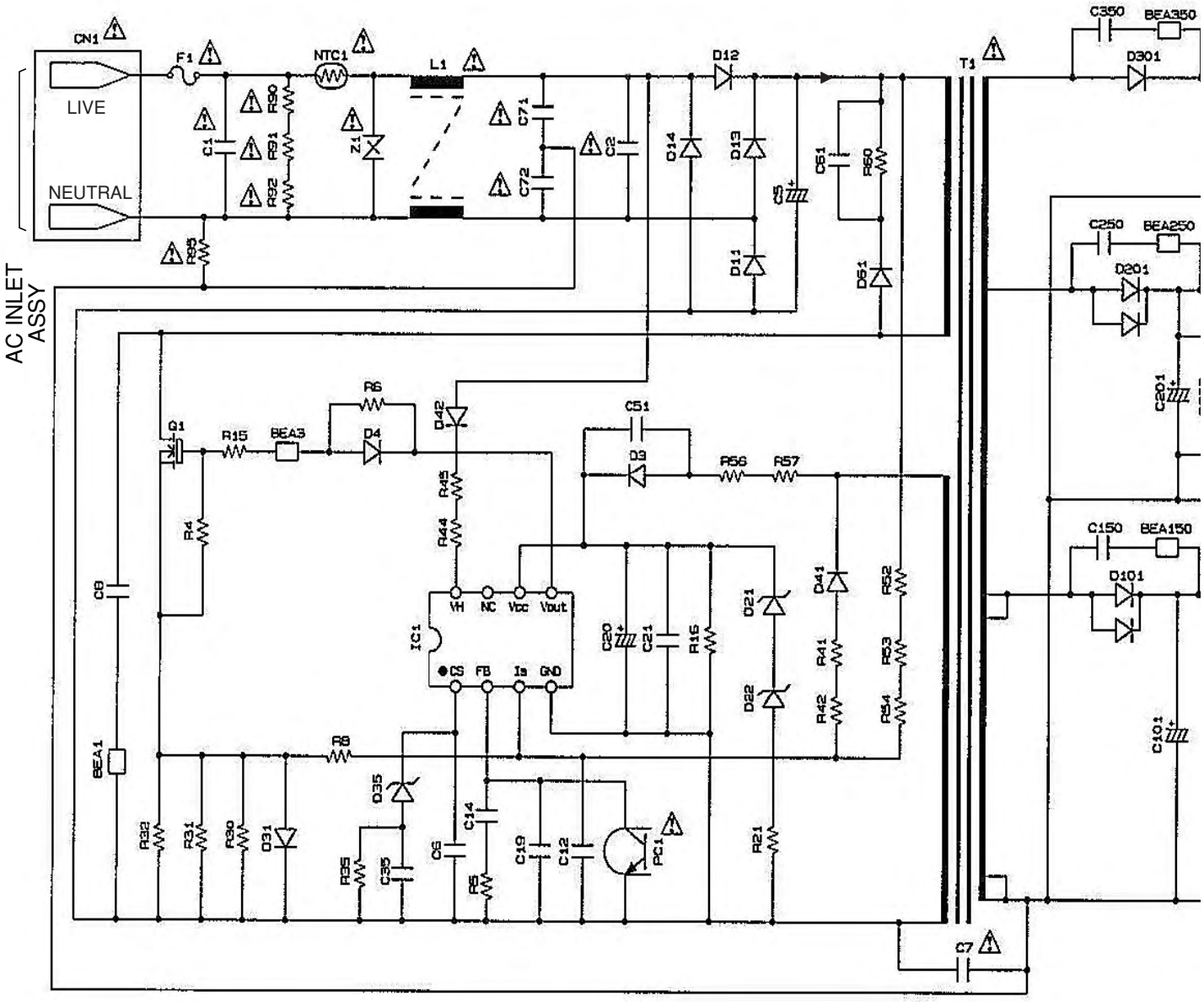
A

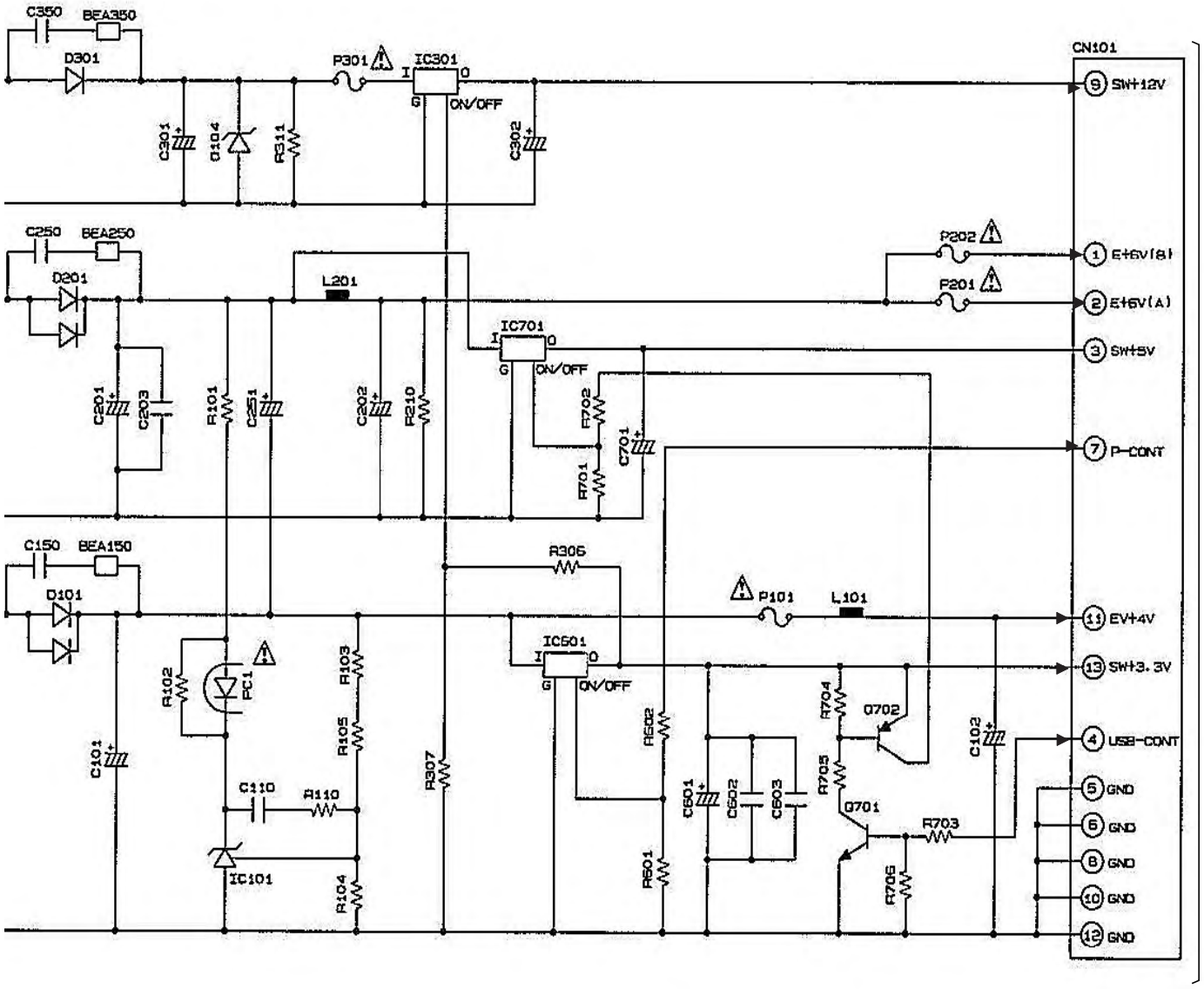
H SYPS ASSY (DWR1401)

[Figure of reference]

- This assembly has no service part.
- Please exchange assembly.

B



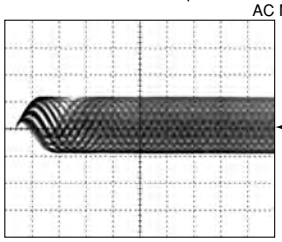

C350
BEA350
D301
P301
IC301
I
O
G
ON/OFF
C301
D104
R311
C302
CN101
9 SW+12V
C250
BEA250
D201
L201
P202
P201
1 E+6V(B)
2 E+6V(A)
IC701
3 SW+5V
C201
C203
R101
C251
C202
R210
R702
C701
R701
7 P-CONT
C150
BEA150
D101
R306
P101
L101
11 EV+4V
IC501
13 SW+3.3V
R102
PC1
R103
R105
C101
C110
R110
IC101
R104
R307
R502
C501
C502
C503
R704
Q702
R705
Q701
R703
R706
R501
C102
4 USB-CONT
5 GND
6 GND
8 GND
10 GND
12 GND
A 2/6 CN401

3.13 WAVEFORMS

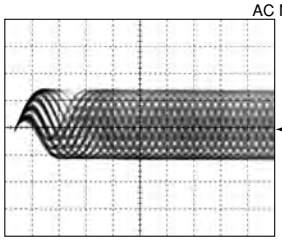
A DVDM ASSY

Note: The numbers for the waveform photos (circled) are identical to those for the schematic diagrams, PCB diagrams, and troubleshooting flowcharts.

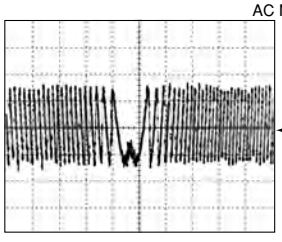
1 **IC101-pin3 (RFP)**
V:200 mV/div. H:0.1 µsec/div.
AC MODE



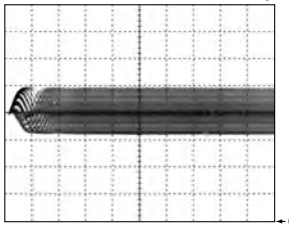
2 **IC101-pin60 (RFO)**
V:500 mV/div. H:0.1 µsec/div.
AC MODE



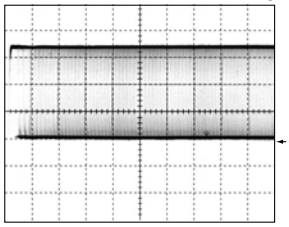
4 **IC101-pin42 (TE)**
V:500 mV/div. H:2 msec/div.
AC MODE



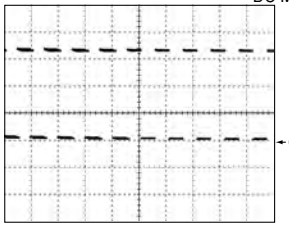
5 **IC201-pin39 (EFMIN)**
V:0.5 V/div. H:0.2 µsec/div.
DC MODE



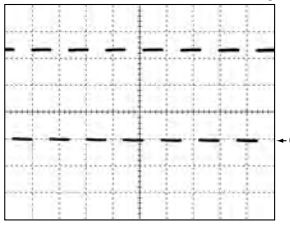
6 **IC201-pin1 (EFMOUT)**
V:1 V/div. H:0.2 µsec/div.
DC MODE



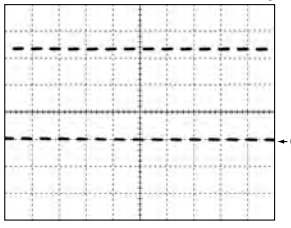
7 **IC202-pin24 (FG)**
V:1 V/div. H:5 msec/div.
DC MODE



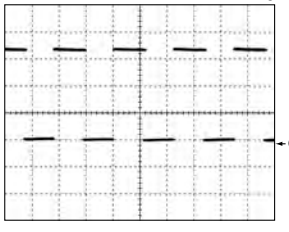
8 **IC701-pin147 (FPWM)**
V:1 V/div. H:10 µsec/div.
DC MODE



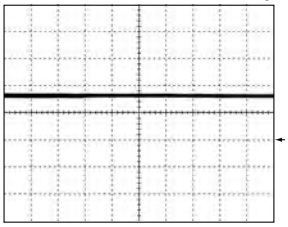
9 **IC701-pin146 (VPWM)**
V:1 V/div. H:10 µsec/div.
DC MODE



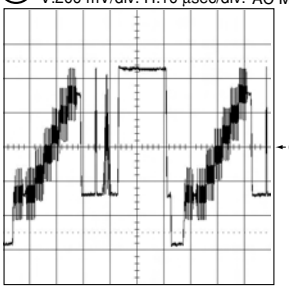
10 **IC701-pin143 (PPWM)**
V:1 V/div. H:0.2 msec/div.
DC MODE



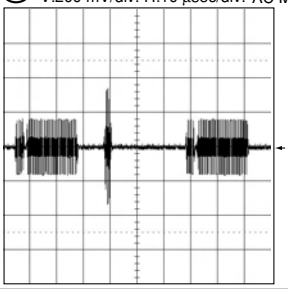
11 **IC701-pin142 (RERR)**
V:1 V/div. H:5 msec/div.
DC MODE



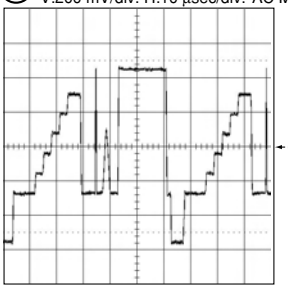
12 **CN901-pin18 (CV)**
V:200 mV/div. H:10 µsec/div. AC MODE



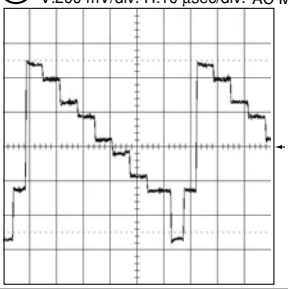
13 **CN901-pin20 (S_C)**
V:200 mV/div. H:10 µsec/div. AC MODE



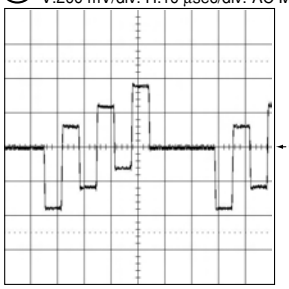
14 **CN901-pin22 (S_Y)**
V:200 mV/div. H:10 µsec/div. AC MODE



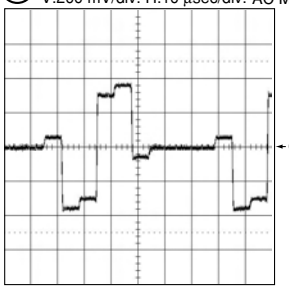
15 **CN901-pin24 (Y) [INTERLACE]**
V:200 mV/div. H:10 µsec/div. AC MODE



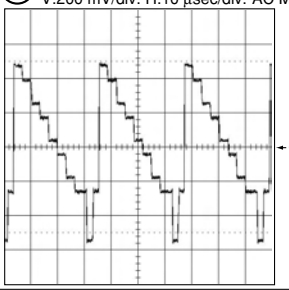
16 **CN901-pin26 (Cb) [INTERLACE]**
V:200 mV/div. H:10 µsec/div. AC MODE



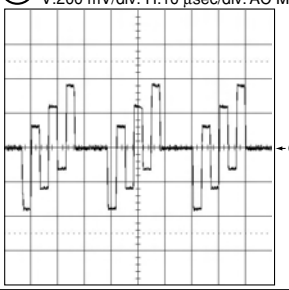
17 **CN901-pin28 (Cr) [INTERLACE]**
V:200 mV/div. H:10 µsec/div. AC MODE



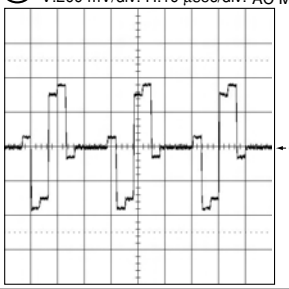
18 **CN901-pin24 (Y) [PROGRESSIVE]**
V:200 mV/div. H:10 µsec/div. AC MODE



19 **CN901-pin26 (Cb) [PROGRESSIVE]**
V:200 mV/div. H:10 µsec/div. AC MODE



20 **CN901-pin28 (Cr) [PROGRESSIVE]**
V:200 mV/div. H:10 µsec/div. AC MODE



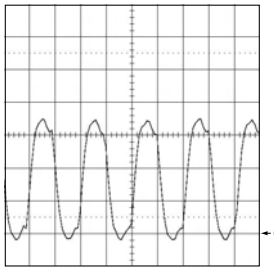
A DVDM ASSY

B VJKB ASSY

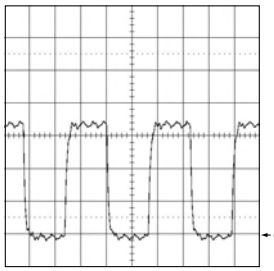
C AJKB ASSY

Note: The numbers for the waveform photos (circled) are identical to those for the schematic diagrams, PCB diagrams, and troubleshooting flowcharts.

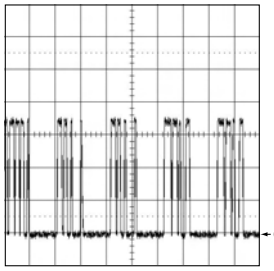
(23) CN551-pin9 (PCMCLK) **DC MODE**
V:1000 mV/div. H:20 nsec/div.



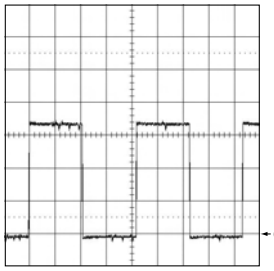
(24) CN551-pin7 (BCK) **DC MODE**
V:1000 mV/div. H:0.1 µsec/div.



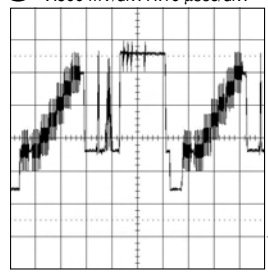
(25) CN551-pin5 (DATA) **DC MODE**
V:1000 mV/div. H:5 µsec/div.



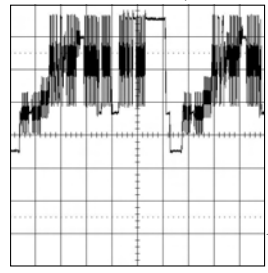
(26) CN551-pin3 (LRCK) **DC MODE**
V:1000 mV/div. H:5 µsec/div.



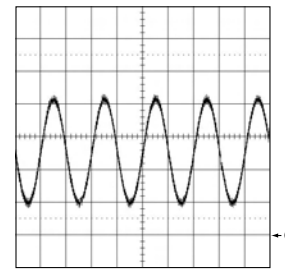
(21) IC7201-pin2 (MO1) **DC MODE**
V:500 mV/div. H:10 µsec/div.



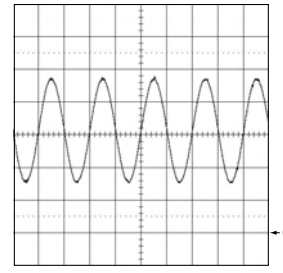
(22) IC7302-pin2 (MO2) **DC MODE**
V:500 mV/div. H:10 µsec/div.



(27) IC8101-pin7 (VOUTL) **DC MODE**
V:1000 mV/div. H:0.5 msec/div.



(28) IC8204-pin7 (L3) **DC MODE**
V:2000 mV/div. H:0.5 msec/div.



A

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D

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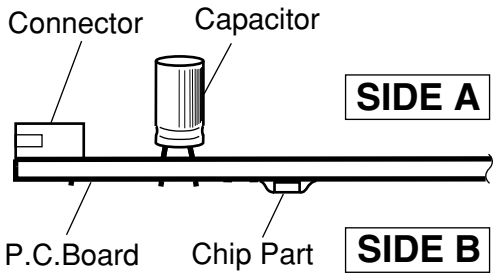
4. PCB CONNECTION DIAGRAM
4.1 LOAB ASSY

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

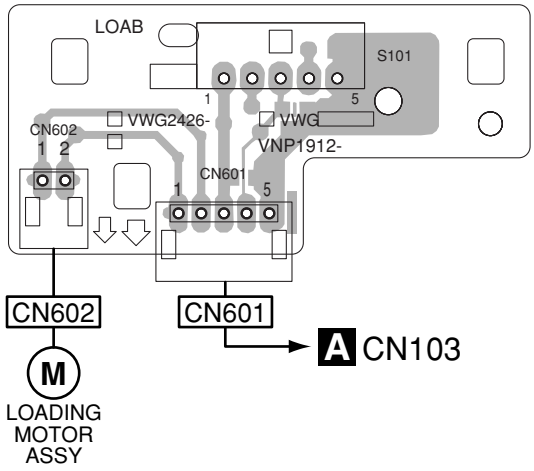
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

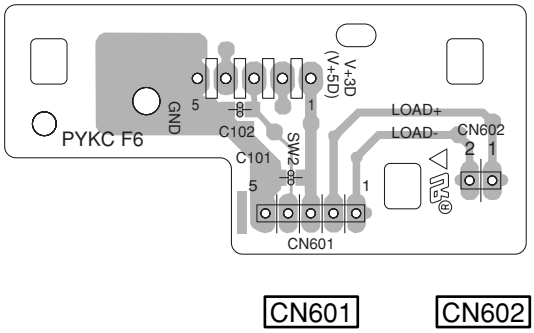


SIDE A

SIDE B

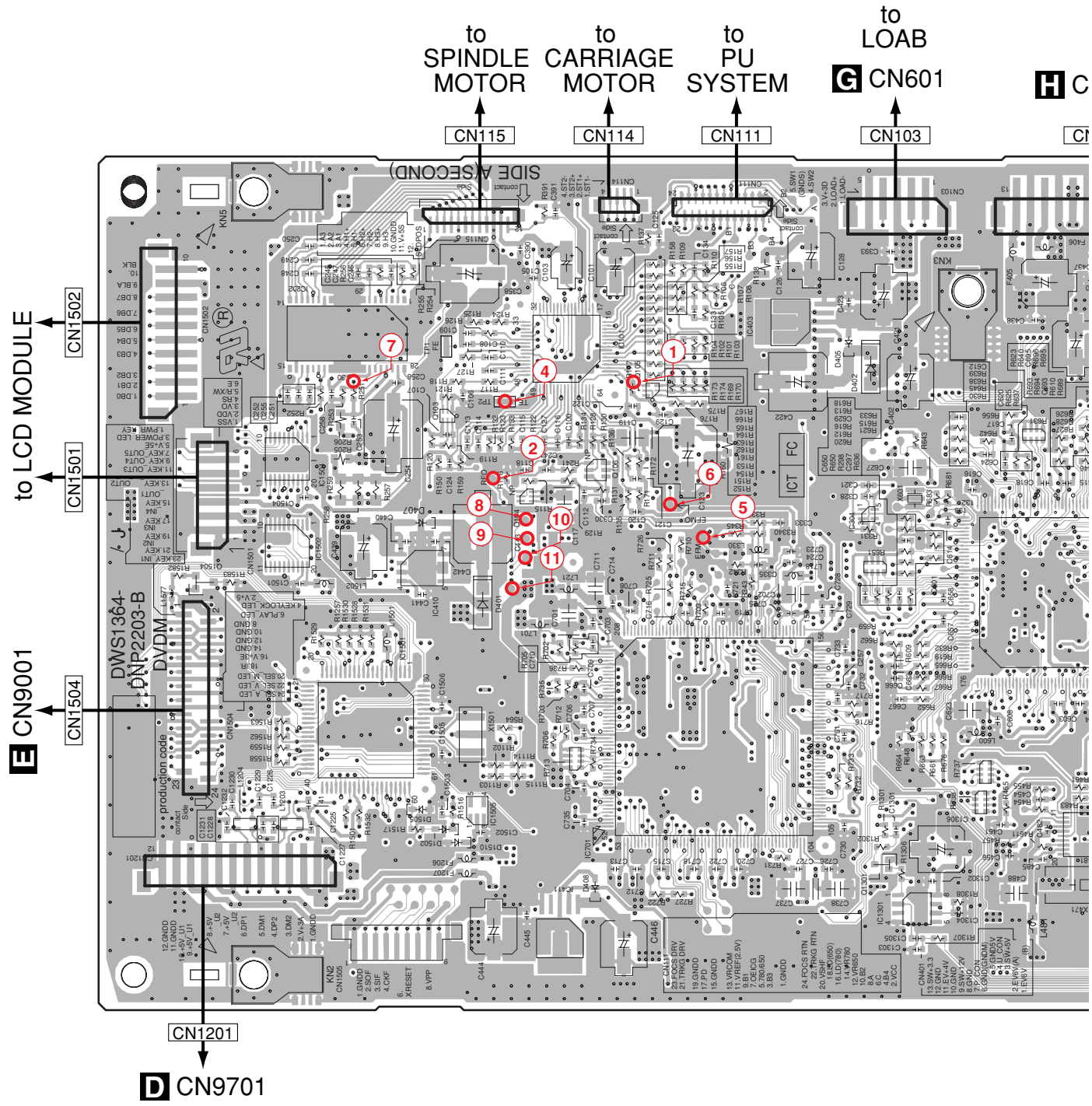
G LOAB ASSY
(VNP1912-A)



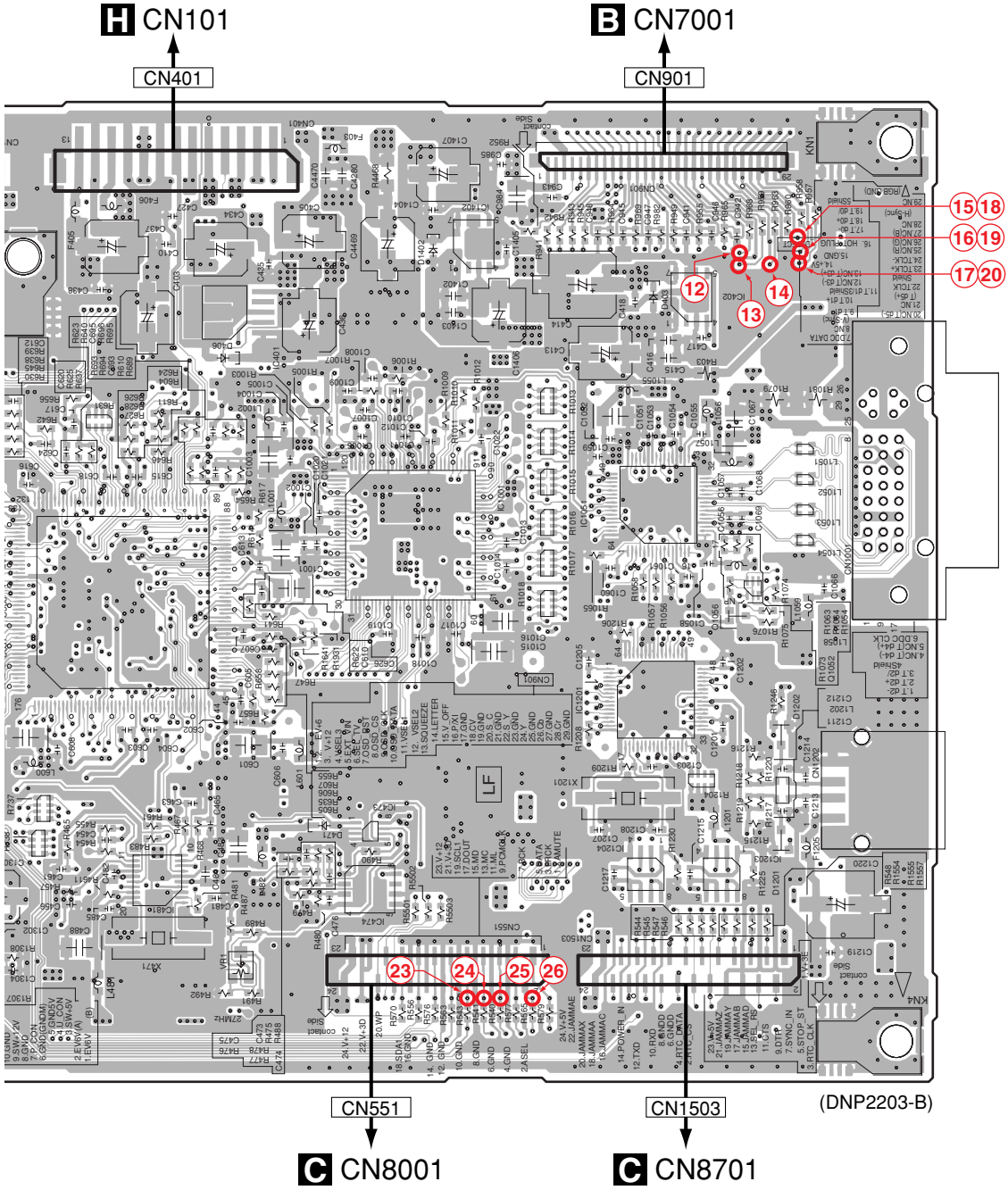


4.2 DVDM ASSY

SIDE A



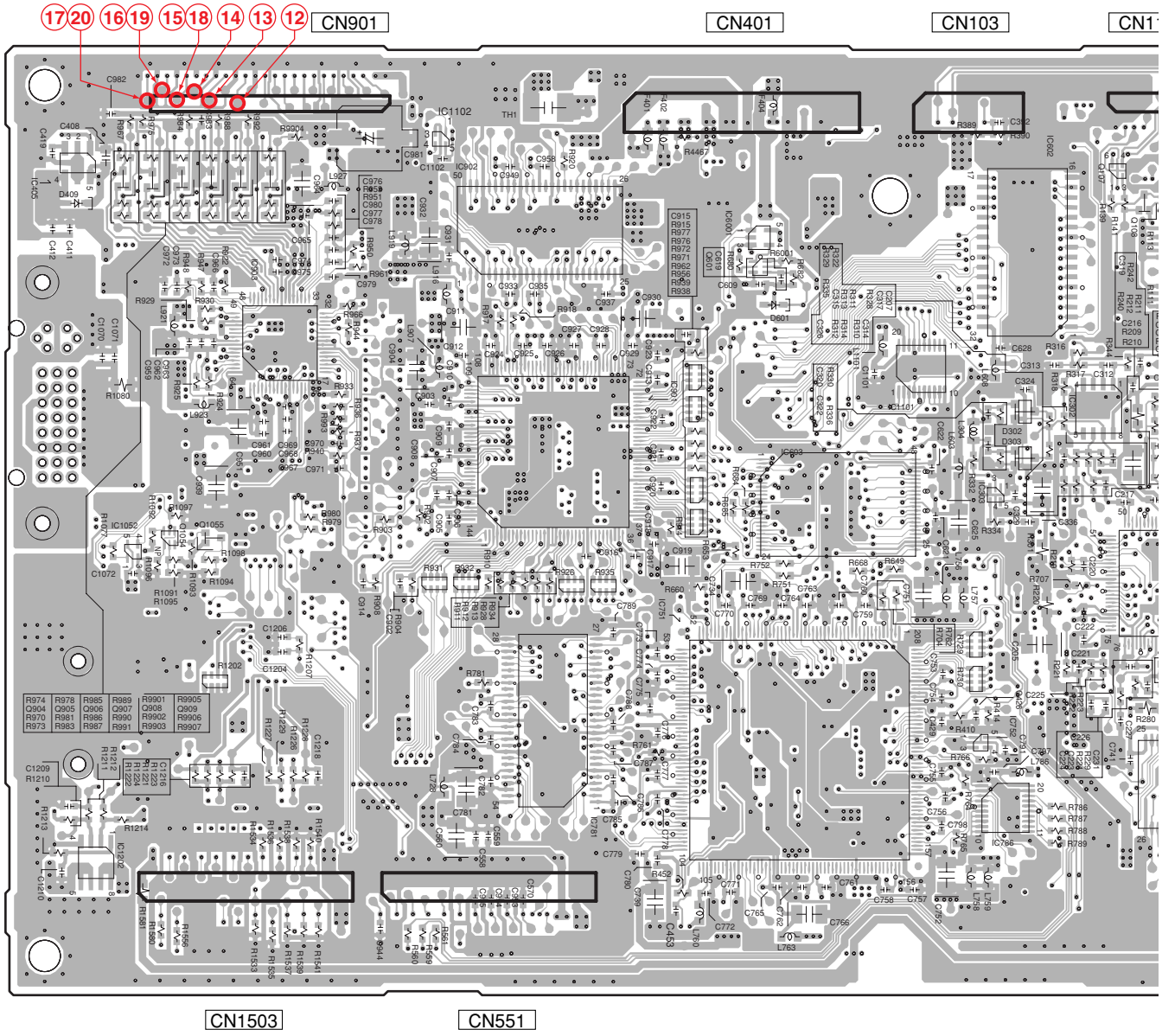
SIDE A



NOTE : The encircled numbers denote measuring point.

SIDE B

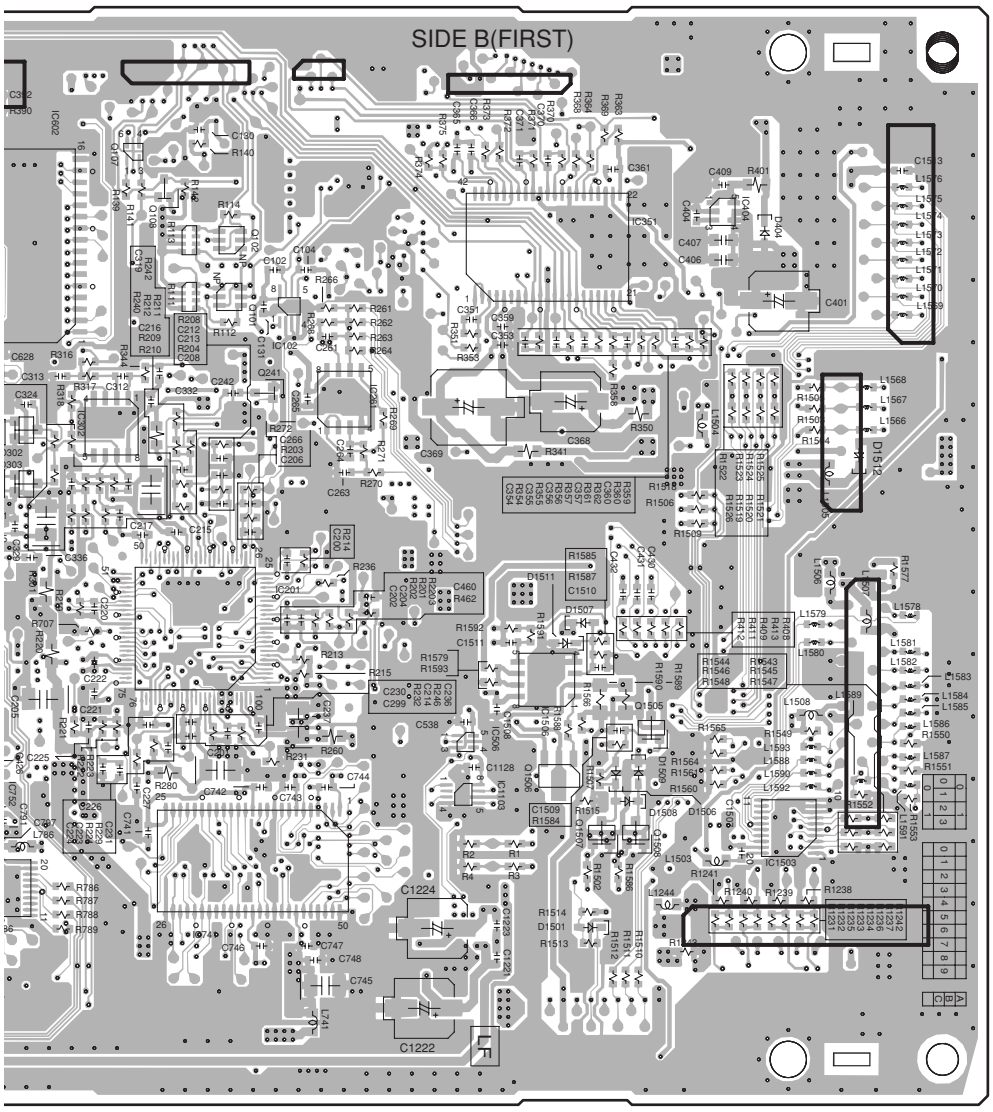
A DVDM ASSY



NOTE : The encircled numbers denote measuring point.

SIDE B

CN111 CN114 CN115



(DNP2203-B)

CN1502
- IC1102
- IC602
- IC902 Q107
- IC405
- IC6001 IC404 Q108
- IC351
- Q102
- IC903 Q601
- Q101
- IC102

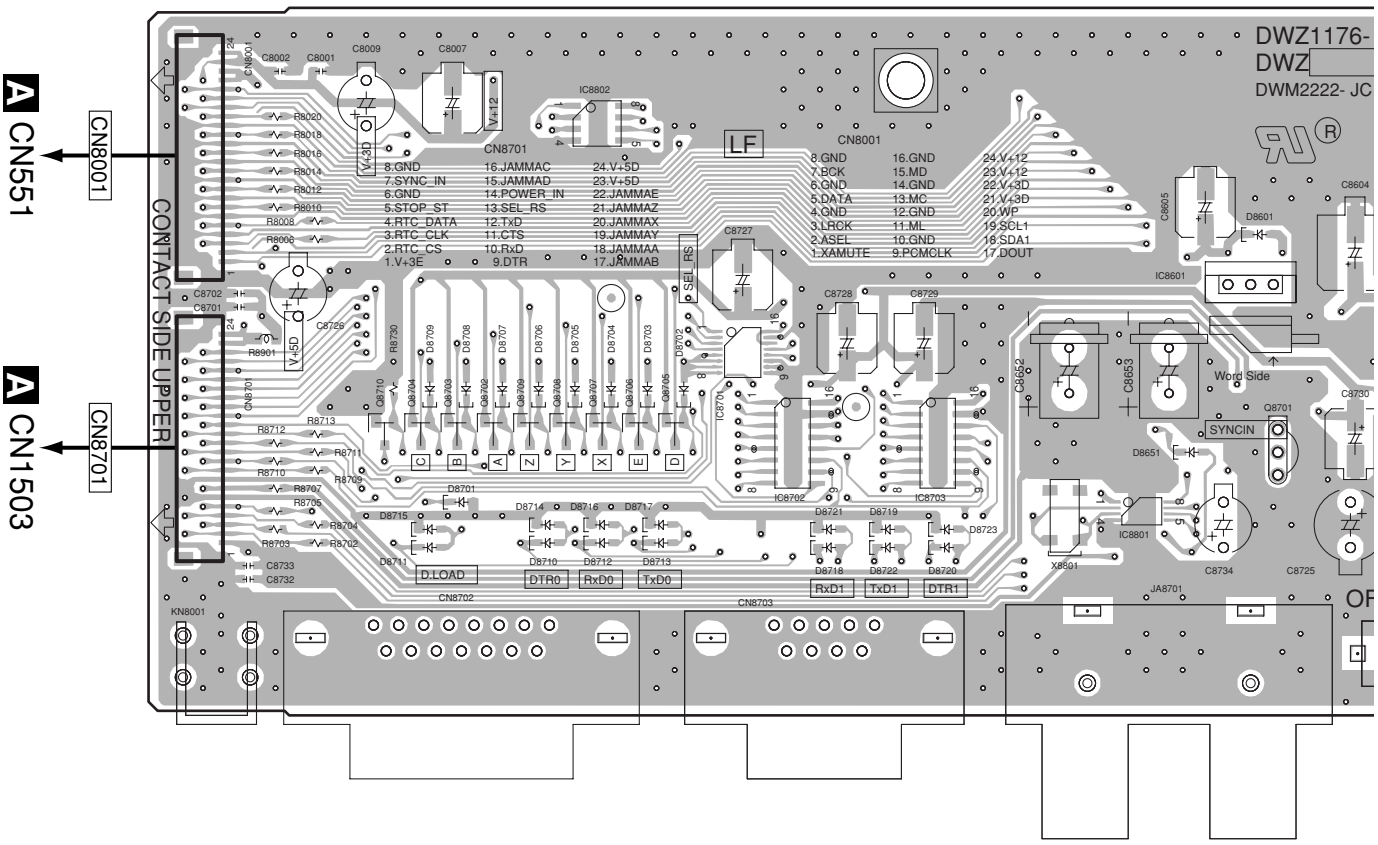
CN1501
- IC261 Q241
- IC901 IC302
- IC1101
- IC603
- IC303
- Q1054
- IC1052 Q1055
- IC201
- IC751

CN1504
- IC1506
- Q1505
- IC506
- Q1506
- IC1103 Q904 Q905 Q906
- IC752 Q907 Q908 Q909
- Q1507
- Q1508
- IC1503
- IC781
- IC1202
- IC786 IC741

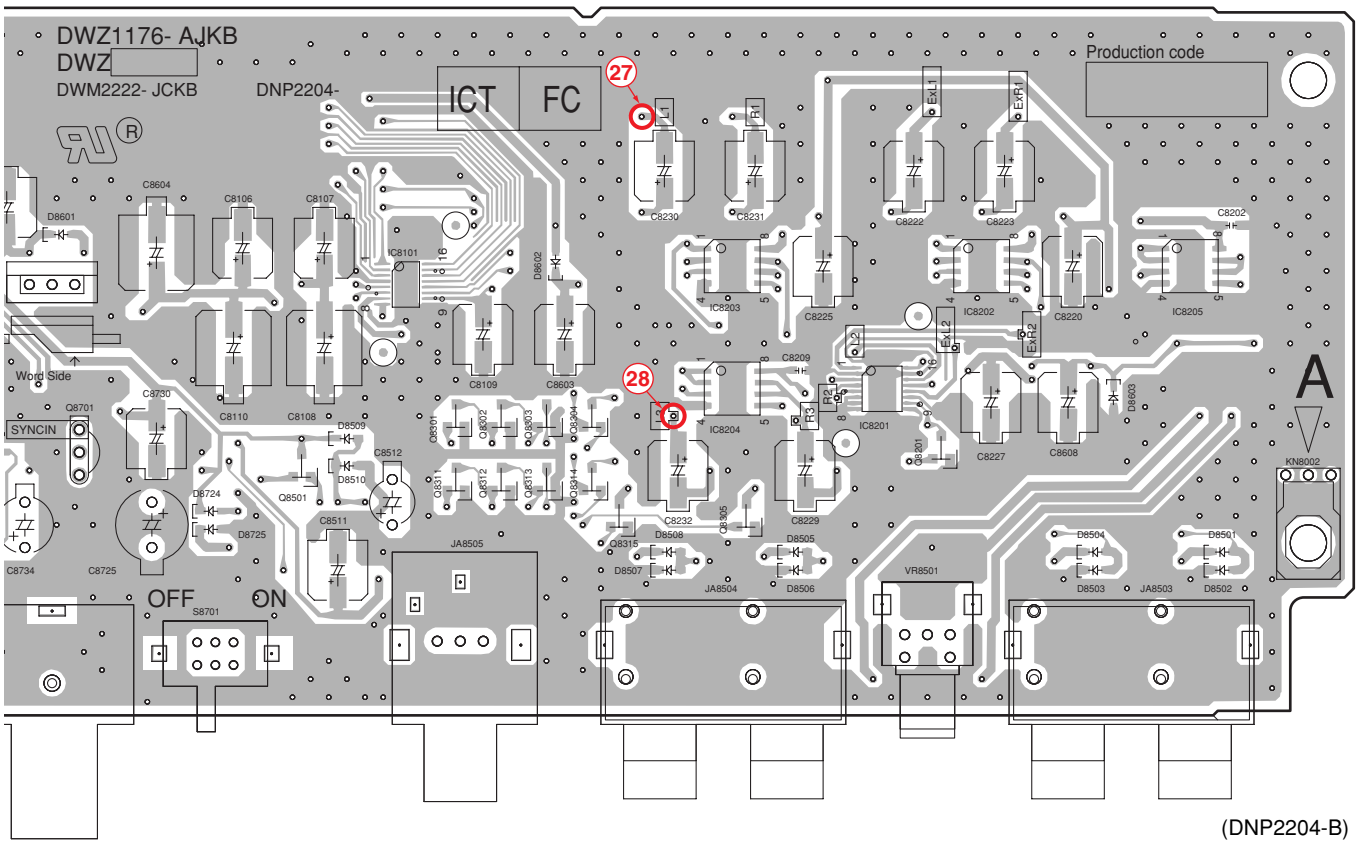
4.3 AJKB ASSY

SIDE A

C AJKB ASSY



SIDE A

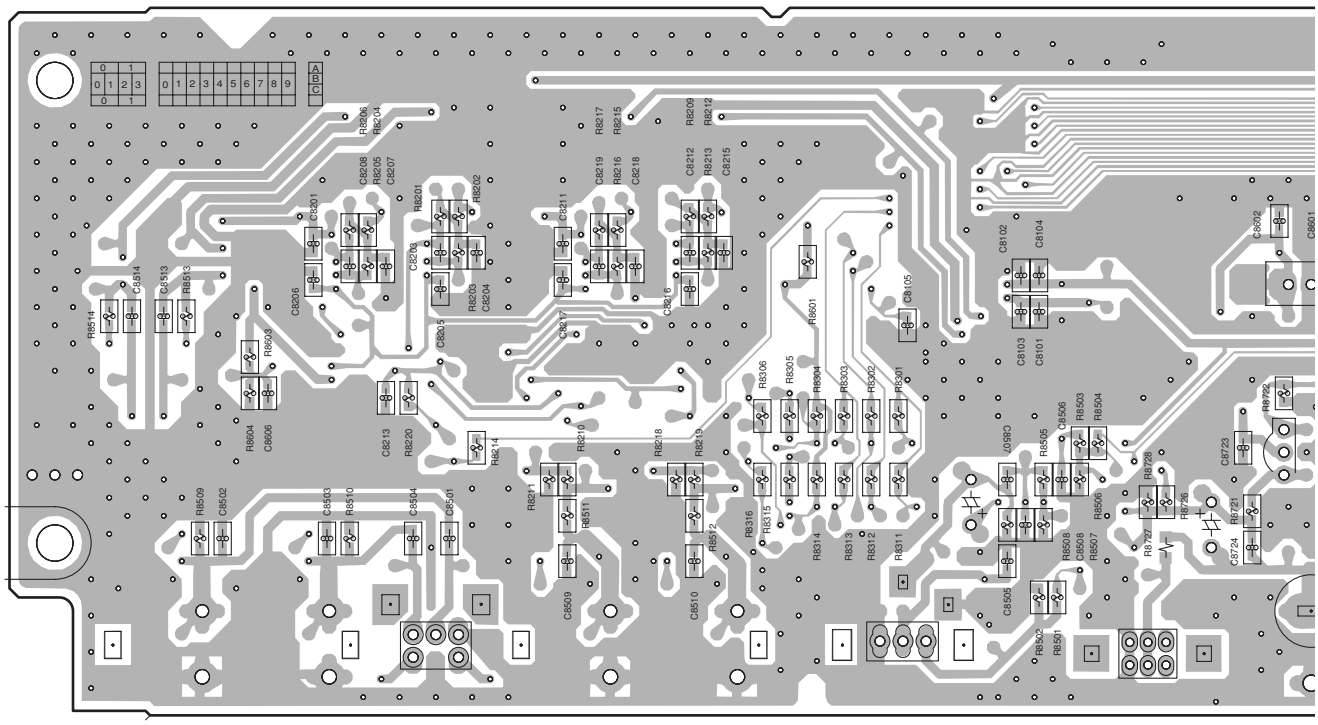


Q8701 IC8101 IC8203 IC8202 IC8205
Q8501 Q8301 Q8303 Q8201
Q8302 Q8304
Q8311 Q8313
Q8312 Q8314 Q8305
Q8315

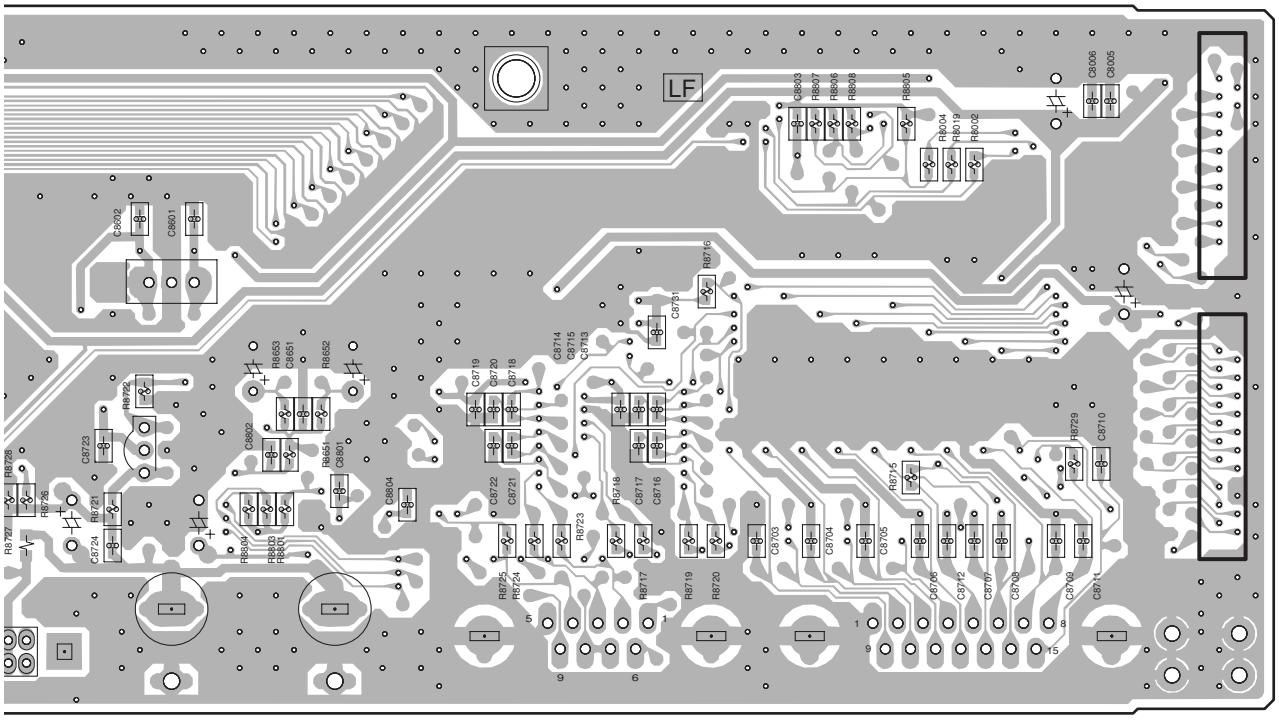
NOTE : The encircled numbers denote measuring point.

SIDE B

C AJKB ASSY



SIDE B

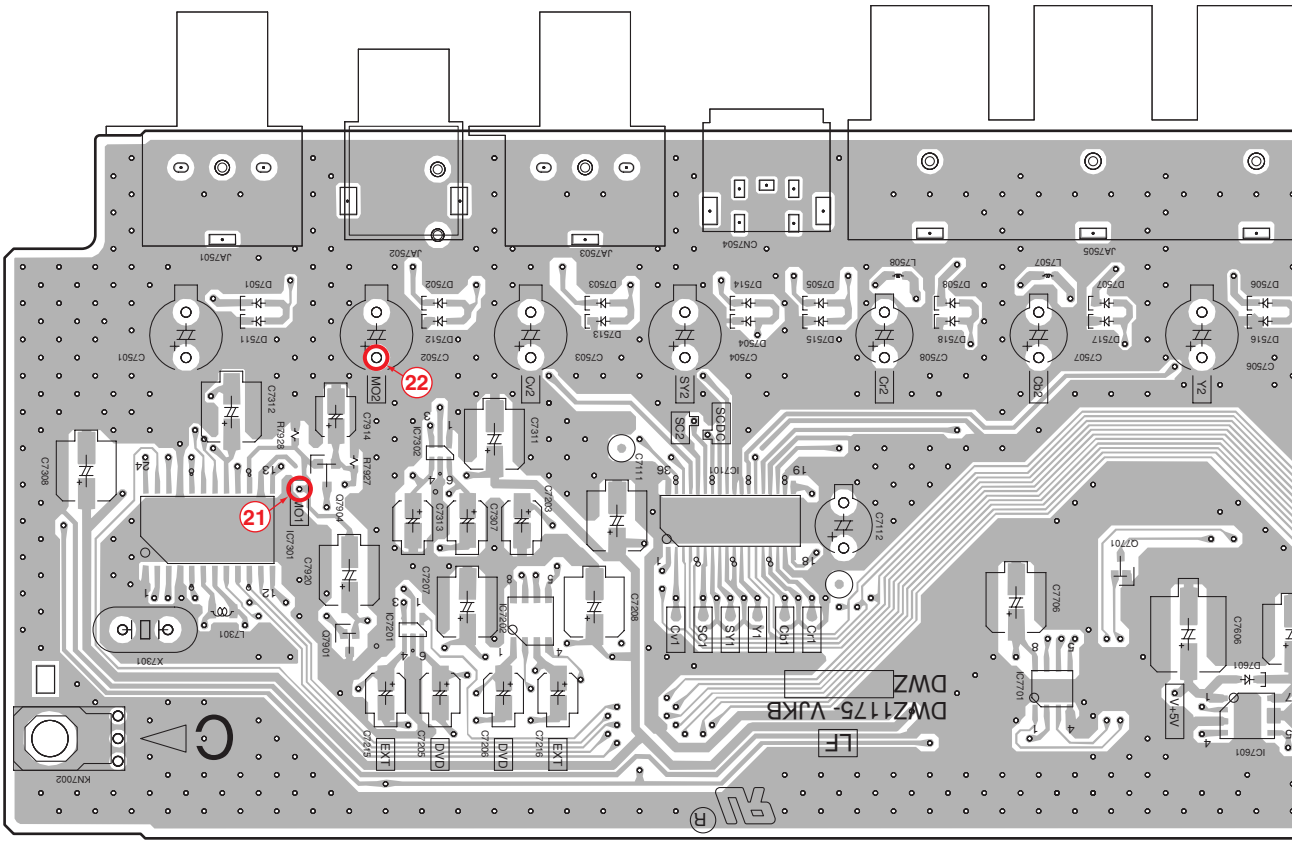


(DNP2204-B)

4.4 VJKB and USBB ASSYS

SIDE A

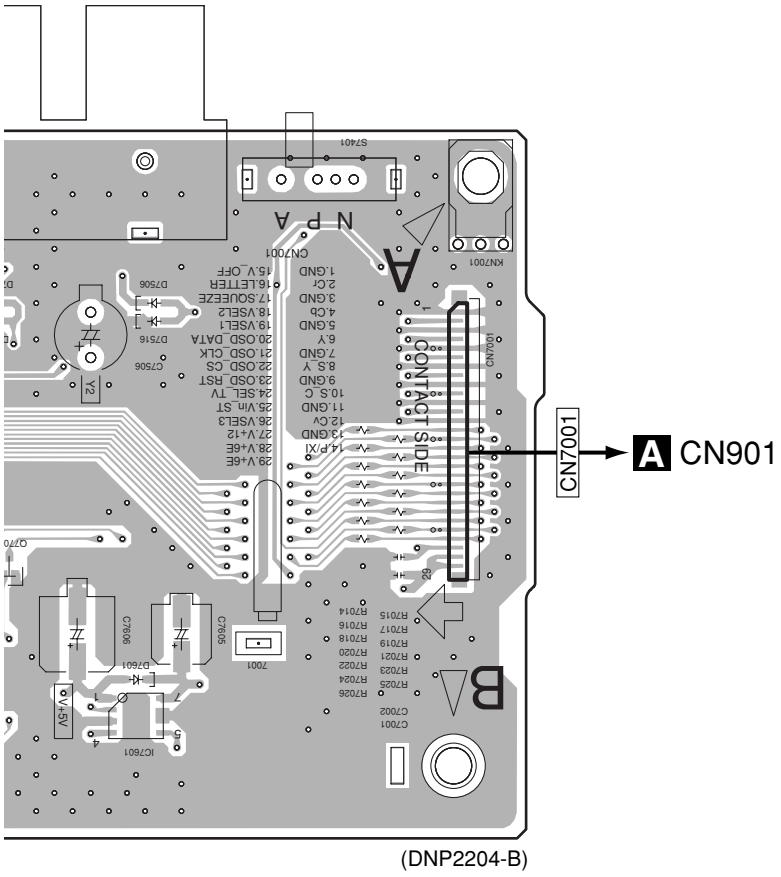
B VJKB ASSY



IC7301 IC7201 IC7202 IC7101 IC7701 Q7701 IC7601
Q7901 IC7302
Q7904

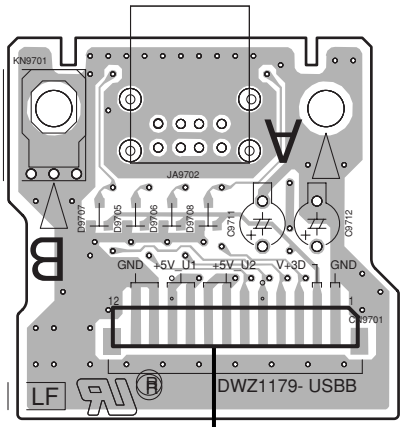
NOTE : The encircled numbers denote measuring point.

SIDE A



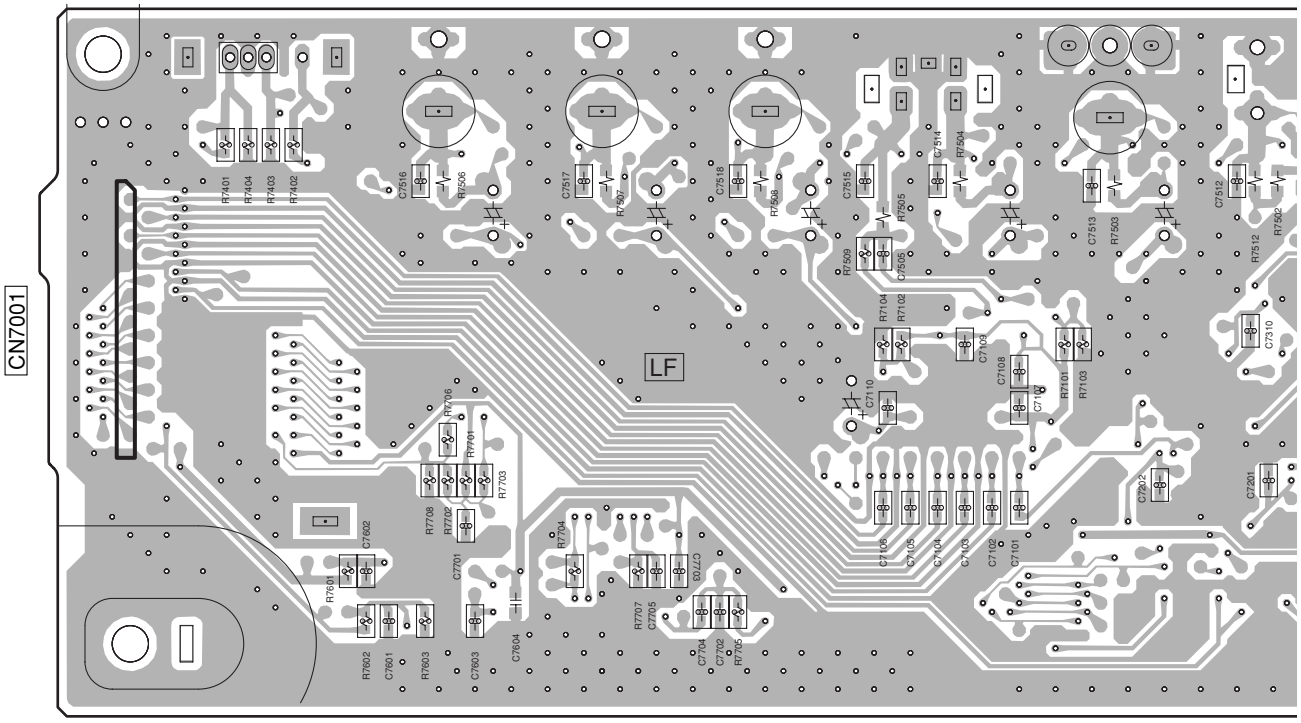
7701 IC7601

D USBB ASSY



SIDE B

B VJKB ASSY

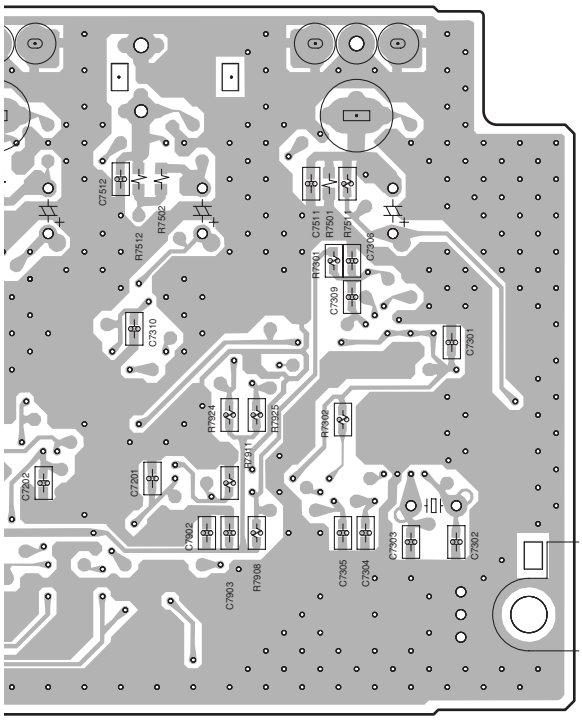


SIDE B

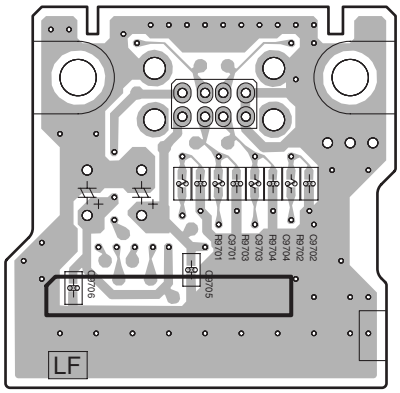
A

B

D USBB ASSY



(DNP2204-B)



CN9701 (DNP2204-B)

C

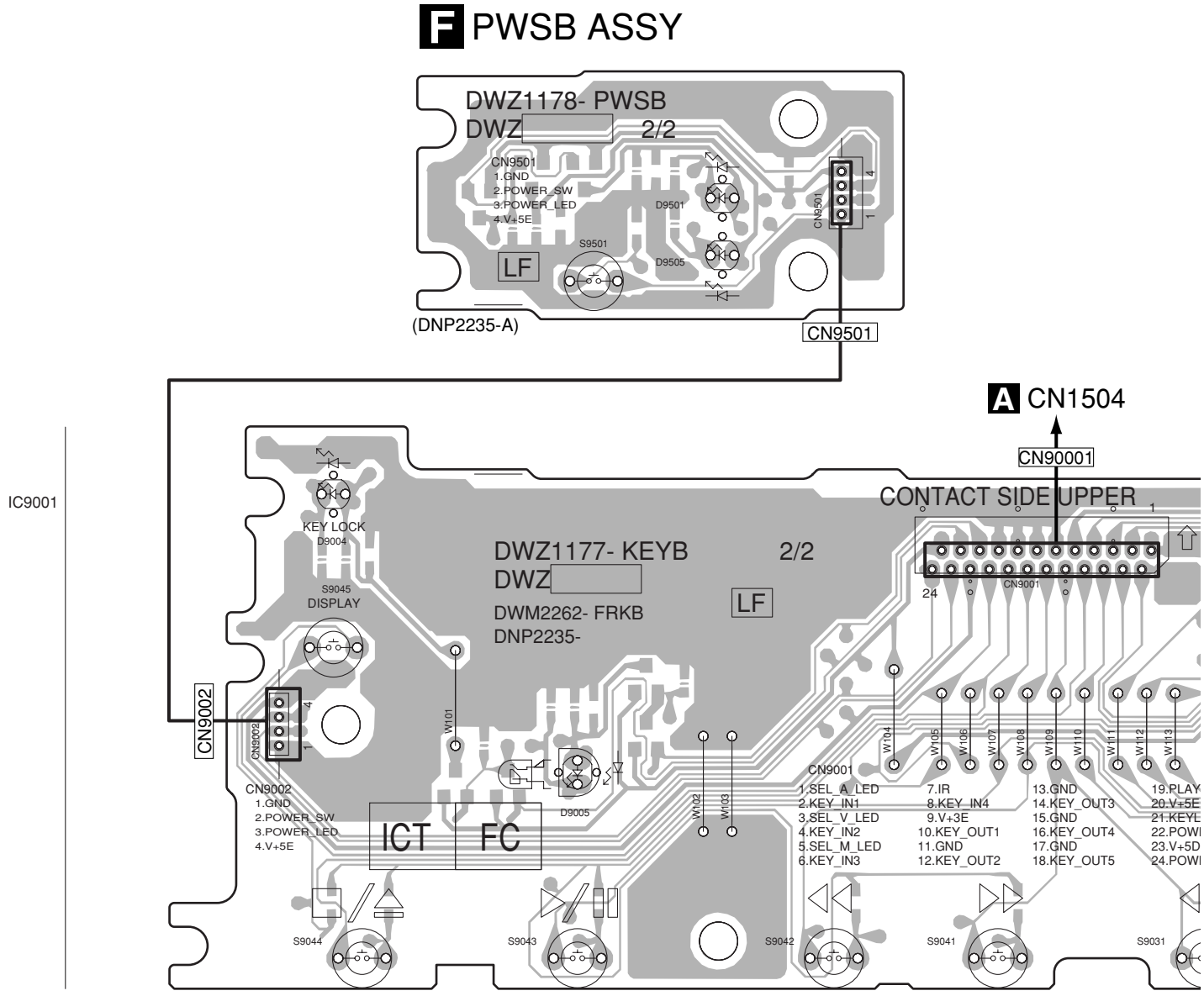
D

E

F

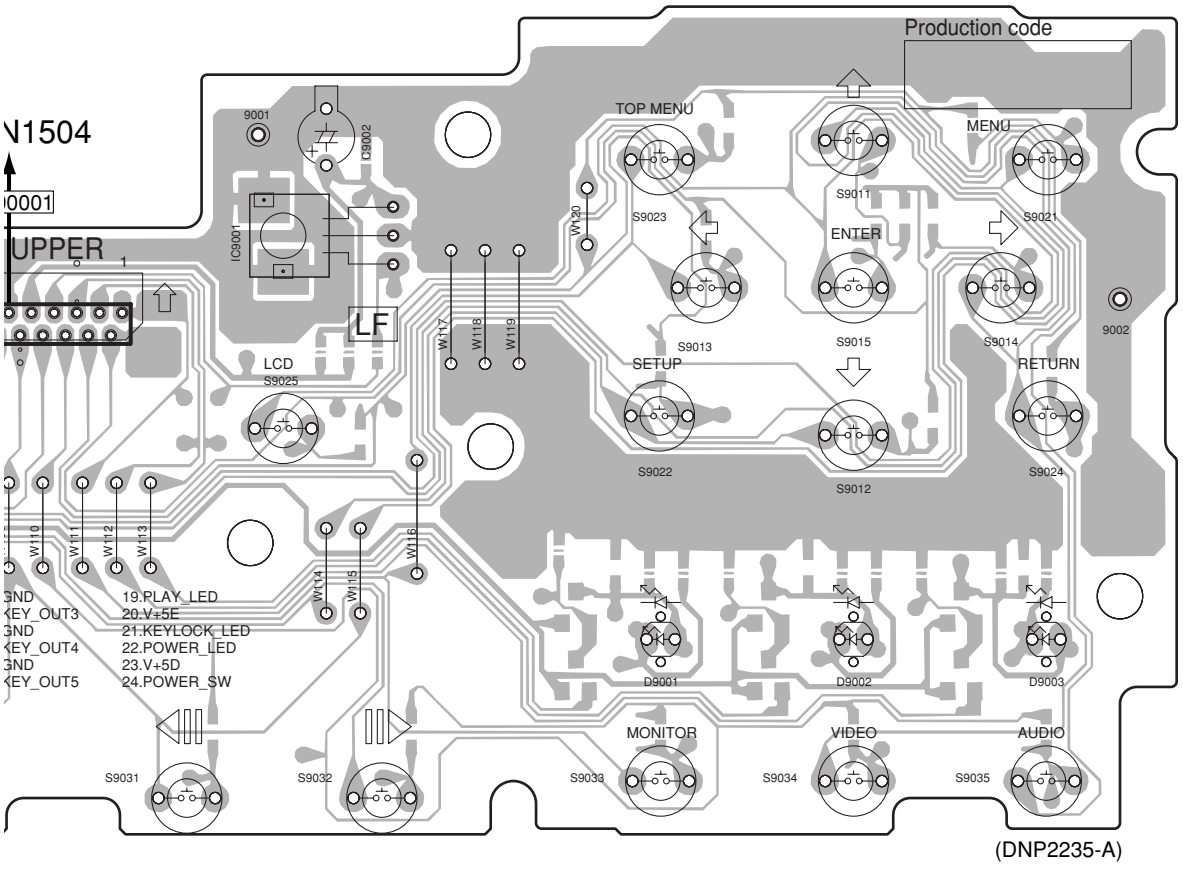
4.5 KEYB and PWSB ASSYS

SIDE A



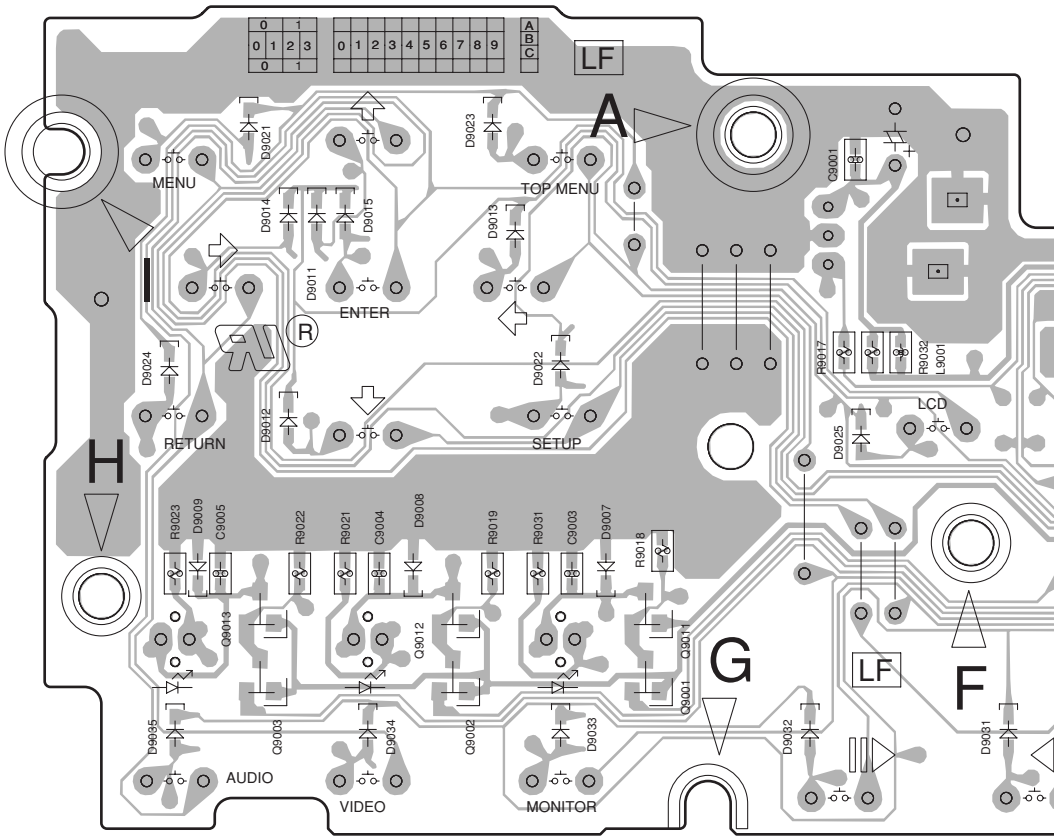
SIDE A

E KEYB ASSY



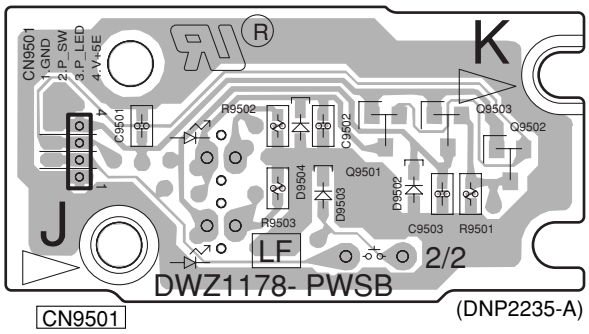
SIDE B

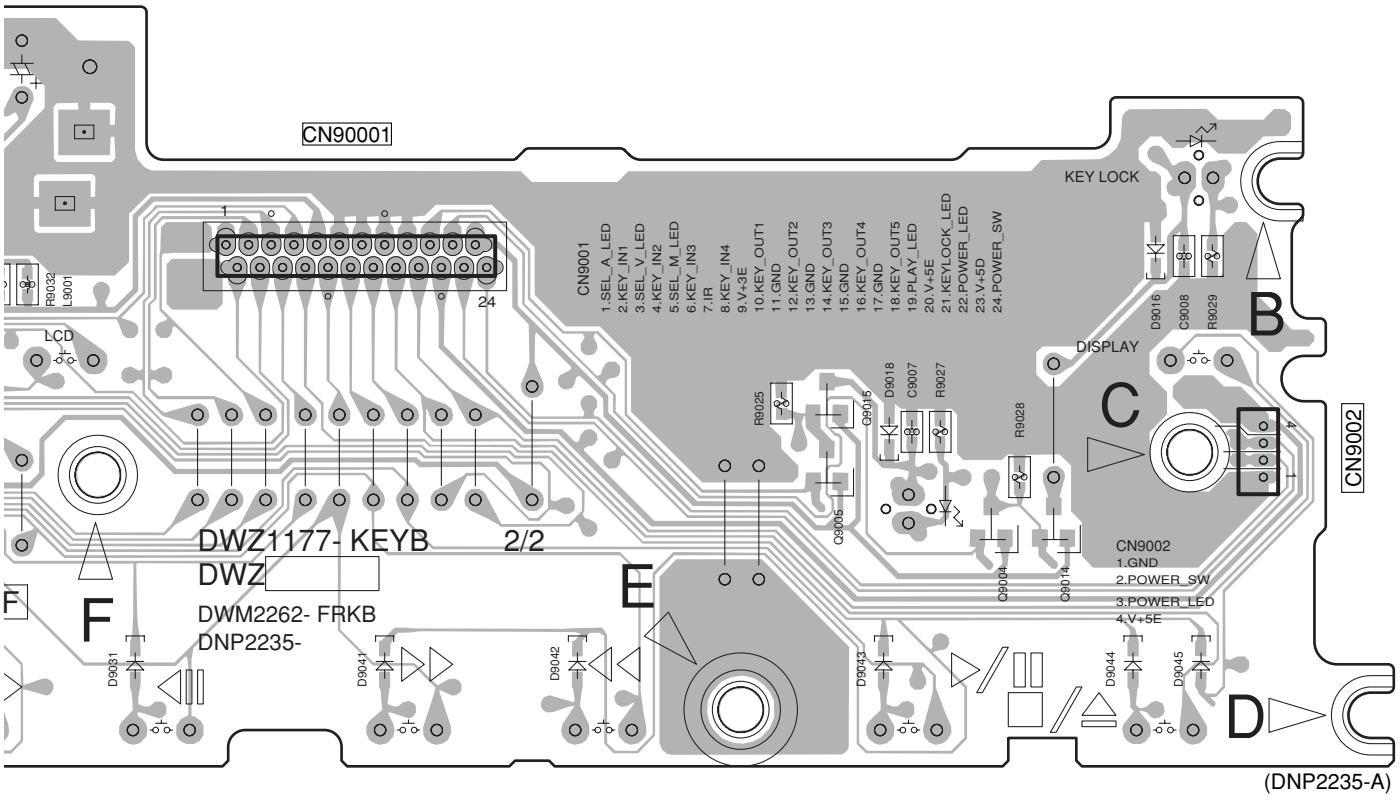
E KEYB ASSY



SIDE B

F PWSB ASSY





4.6 SYPS ASSY

SIDE A

SIDE B

H SYPS ASSY
[DWR1401]

H

H

5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→ *56 x 10¹* →	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10³* →	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→ *R50*		*RN2H R 5 0 K*
1 Ω	→ *1R0*		*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→ *562 x 10¹* →	*5621*	*RN1/4PC 5 6 2 1 F*

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
	1	..DVD M ASSY	DWS1364
NSP	1	..JCKB ASSY	DWM2222
	2	..AJKB ASSY	DWZ1176
	2	..VJKB ASSY	DWZ1175
	2	..USBB ASSY	DWZ1179
NSP	1	..FRKB ASSY	DWM2262
	2	..KEYB ASSY	DWZ1177
	2	..PWSB ASSY	DWZ1178
NSP	1	..LOADER MECHA ASSY	VWT1229
NSP	2	..LOAB ASSY	VWG2426
⚠	1	..SYPS ASSY	DWR1401

Mark	No.	Description	Part No.
A DVDM ASSY			
SEMICONDUCTORS			
		IC0903	ADV7320KSTZ
		IC0261, IC0302	BA4510F
		IC0202	BA6664FM
		IC0901	CD0040AF
		IC0481	CY22389ZXC-15
		IC0602	CY62148VLL-70ZI
		IC0603	DYW1749
		IC0741, IC0902	HY57V161610ETP-8
		IC0781	K4S641632H-TC75
		IC0101	LA9704WS1
		IC0201	LC78652W
		IC1301	LM1881M
		IC0351	M56788AFP
		IC0751	M65776BFP
⚠		IC0404	MM1385EN
⚠		IC0410	MM1561JF
⚠		IC0402, IC1402	MM1565AF
		IC0474	NJM2100M
⚠		IC0405	NJM2880U1-05
		IC1506	NJM2904M
		IC1001	PD0280B
		IC0601	PD6345A
		IC0701	PE5286B
		IC1501	PE5557B
⚠		IC0403, IC0411	PQ025EZ01ZP
⚠		IC0401	PQ033EZ01ZP
		IC1505	PST3228
		IC1051	SII9190CTG64
		IC1504	TC74LCX245FTS1
		IC0786, IC1101	TC74VHC541FTS1
		IC1502, IC1503	TC74VHCT541AFTS1
		IC6001	TC7SET00FS1
		IC0506	TC7SH08FUS1
		IC0752, IC1102	TC7SZ32FU
		IC0303, IC0304	TC7SZU04FU
		IC0102, IC0473	TC7W53FU
		IC1103	TC7WH34FU
		IC1201	UHC124BF
		IC1202–IC1204	UPD16876G
		Q0904–Q0909, Q1055	2SA1576A
		Q1505	2SC2412K
		Q1506	2SD1664
		Q1504	DTA124EK
		Q1056	DTA124EUA
		Q0108, Q0241, Q1301	DTC114EUA
		Q1507, Q1508	DTC124EK
		Q0101, Q0102, Q0106	HN1A01F
		Q0103, Q0105	HN1B04FU
		Q0104, Q0601, Q1054	HN1C01FU
		Q0107	UM5K1N
		Q1052	UM6K1N
		D1501, D1502, D1506-D1509	1SS355
		D1201, D1202	DAN217
		D0302, D0303	KV1870S-G
		D0401, D0402	RB051L-40
		D0403, D0404, D0406, D0408, D0409	RB501V-40
		D0471, D0601, D1402	RB501V-40
		D1512	UDZS5R6 (B)
⚠		TH0001	MINISMDC110F
COILS AND FILTERS			
		L1051–L1054	ATH7022
		L0481, L0482, L0600, L0601, L0603	CTF1305
		L0608, L0701, L0718, L0721, L0728	CTF1305
		L0741, L0756–L0760, L0763, L0786	CTF1305
		L0907, L0916, L0919, L0921, L0923	CTF1305

Mark No.	Description	Part No.
	L0927, L1001, L1002, L1055–L1059	CTF1305
A	L1101, L1201, L1244, L1501–L1508	CTF1305
	L1566–L1593	CTF1306
	F0401–F0406, F1205–F1207	CTF1661
	L1202–L1204	DTH1197
	L0304	LCYA1R2J2520

CAPACITORS

	C0101 (47/6.3)	ACH7174
	C0662	CCSRCH100D50
	C0121	CCSRCH121J50
	C0314	CCSRCH150J50
B	C0100, C0134	CCSRCH151J50
	C1207, C1208	CCSRCH220J50
	C0120, C0133	CCSRCH221J50
	C0324, C0391, C0392, C0941–C0948	CCSRCH331J50
	C0109	CCSRCH391J50
	C1211–C1214, C1225–C1232	CCSRCH470J50
	C1303	CCSRCH471J50
	C0241	CCSRCH560J50
	C0107, C0360	CCSRCH681J50
	C0977	CCSRCH821J50
	C0123, C0254, C0358, C0369, C0414	CEHVW101M16
C	C0422, C0981, C1220	CEHVW101M16
	C0103	CEHVW220M6R3
	C0443	CEHVW221M6R3
	C1407	CEVW101M16
	C0407, C0408, C0416, C0484, C1403	CKSQYB225K10
	C4280, C4470	CKSQYB225K10
	C0216, C0313, C0351, C0412, C0427	CKSRYB102K50
	C0559, C0606, C0617, C0703, C0733	CKSRYB102K50
	C0748, C0967, C0975, C0985, C1059	CKSRYB102K50
	C1068, C1069, C1503	CKSRYB102K50
D	C0110, C0113, C0220, C0225, C0261	CKSRYB103K50
	C0320–C0322, C0330, C0404, C0426	CKSRYB103K50
	C0619, C1204, C1206, C1511	CKSRYB103K50
	C0108, C0111, C0114, C0115	CKSRYB104K16
	C0212, C0213, C0227, C0231	CKSRYB104K16
	C0248–C0251, C0255, C0263, C0315	CKSRYB104K16
	C0317, C0332, C0474, C0476	CKSRYB104K16
	C1201–C1203, C1205, C1302	CKSRYB104K16
	C1304, C1305, C1501, C1504–C1506	CKSRYB104K16
	C1508–C1510	CKSRYB104K16
	C0102, C0104, C0105, C0116, C0127	CKSRYB105K6R3
E	C0223, C0224, C0264, C0312, C0972	CKSRYB105K6R3
	C0106	CKSRYB152K50
	C0208	CKSRYB222K50
	C0266	CKSRYB224K10
	C0475	CKSRYB332K50
	C1009	CKSRYB334K10
	C0978	CKSRYB392K50
	C0206, C0214, C0242, C0357, C0473	CKSRYB472K50
	C0353, C0359, C0365, C0366, C0410	CKSRYF104Z25
	C0609, C0723, C0973, C0976	CKSRYF104Z25
	C1070, C1071, C1507	CKSRYF104Z25
F	C0112, C0118, C0122, C0125, C0126	CKSRYF105Z10
	C0129-C0131, C0200, C0202, C0204	CKSRYF105Z10
	C0215, C0217, C0221, C0222, C0226	CKSRYF105Z10
	C0230, C0236, C0253, C0256, C0258	CKSRYF105Z10
	C0265, C0299, C0319, C0328, C0329	CKSRYF105Z10
	C0390, C0393, C0409, C0411	CKSRYF105Z10
	C0418, C0419, C0438, C0442, C0482	CKSRYF105Z10
	C0485, C0538, C0558, C0602–C0605	CKSRYF105Z10
	C0607, C0608, C0610, C0613–C0616	CKSRYF105Z10
	C0618, C0621, C0622, C0628	CKSRYF105Z10
	C0657, C0658, C0704, C0706–C0710	CKSRYF105Z10
	C0712–C0716, C0718–C0722	CKSRYF105Z10
	C0724–C0732, C0735, C0741–C0744	CKSRYF105Z10
	C0746, C0747, C0753-C0765	CKSRYF105Z10
	C0769–C0780, C0782–C0789, C0791	CKSRYF105Z10
	C0797, C0903, C0905–C0910	CKSRYF105Z10
	C0912–C0918, C0920–C0929, C0931	CKSRYF105Z10
	C0933, C0935, C0937, C0949	CKSRYF105Z10
	C0958–C0963, C0965, C0968, C0969	CKSRYF105Z10
	C0974, C0982, C0983, C1002	CKSRYF105Z10
	C1004–C1007, C1010–C1014	CKSRYF105Z10
	C1017–C1022, C1052–C1058	CKSRYF105Z10
	C1060, C1061, C1066, C1101, C1102	CKSRYF105Z10
	C1128, C1219, C1221, C1223, C1301	CKSRYF105Z10
	C1404	CKSRYF105Z10
	C0368, C0403, C0405, C1306	DCH1242
	C0421, C0434, C0437, C0439, C0444	VCH1246
	C0446	VCH1246
	C0128, C0401, C0413, C0436, C1406	VCH1252
	C4469	VCH1252
	C0119, C0205, C0237, C0326, C0483	VCH1258
	C0488, C0560, C0601, C0623, C0625	VCH1258
	C0701, C0702, C0711, C0737–C0739	VCH1258
	C0745, C0751, C0752, C0781, C0904	VCH1258
	C0911, C0932, C0939, C0951, C0964	VCH1258
	C1001, C1003, C1051, C1067	VCH1258
	C0117, C0201	VCH1259

RESISTORS

R0737, R0738	RAB4C0R0J
R0729, R0730	RAB4C101J
R0631, R0713, R1202, R1204	RAB4C103J
R0111, R0931, R0932, R1013–R1018	RAB4C220J
R0113, R0926, R0935, R0938, R0939	RAB4C470J
R0976, R0977	RAB4C470J
R0487	RN1/16SE1602D
R0492	RN1/16SE6201D
R0138, R0160, R0205, R0206, R0220	RS1/10S0R0J
R0240, R0260, R0280, R0301, R0350	RS1/10S0R0J
R0401, R0403, R1079, R1080, R1581	RS1/10S0R0J
R0341	RS1/10S101J
R0364, R0369, R0373, R0375	RS1/16S1003F
R0123	RS1/16S1202F
R0358, R0361	RS1/16S1503F
R0990, R9902, R9906	RS1/16S2700F
R0947, R0951	RS1/16S2701F
R0970, R0981, R0986	RS1/16S3000F
R0948, R0953	RS1/16S3300F
R0132	RS1/16S4702F
R0357, R0362, R0363, R0368, R0372	RS1/16S6802F
R0374	RS1/16S6802F
R0257	RS1/4SA1R0J
R0258, R0259, R1589, R1590	RS1/4SA2R2J

Mark	No.	Description	Part No.
	VR0001	Variable Resistor(10 k)	CCP1396
		Other Resistors	RS1/16S###J

MISCELLANEOUS

	CN0103	PH CONNECTOR 5P	AKM1276
	CN1501	PH CONNECTOR 6P	AKM1277
	CN1502	PH CONNECTOR 10P	AKM1281
	CN1201	PH CONNECTOR 12P	AKM1283
	CN0401	PH CONNECTOR 13P	AKM1284
	CN1001	DVI CONNECTOR 24P	DKN1405
	CN1202	USB CONNECTOR	DKN1416
	X0471	CRYSTAL RESONATOR	DSS1117
	X1201	CRYSTAL RESONATOR	DSS1136
	CN0114	FFC CONNECTOR 4P	VKN1409
	CN0115	FFC CONNECTOR 12P	VKN1416
	CN0901	FFC CONNECTOR 29P	VKN1433
	CN0551	FFC CONNECTOR 24P	VKN1510
	CN1503	FFC CONNECTOR 24P	VKN1510
	CN1504	FFC CONNECTOR 24P	VKN1510
	CN1505	ZH CONNECTOR 9P	VKN1935
	CN0111	FFC CONNECTOR 24P	VKN2045
	KN0001–KN0005	EARTH METAL FITTING	VNF1109
	X1501	CHIPCERAMIC RESONATOR	VSS1102
	X0601	CERAMIC RESONATOR	VSS1160

B VJKB ASSY

SEMICONDUCTORS

	IC7101		LA73054
	IC7201		MM1504XN
	IC7202		MM1117XF
	IC7301		PDC084B
	IC7302		MM1507XN
⚠	IC7601		MM1565AF
	IC7701		LM1881M
	Q7901		2SA1576A
	Q7904		2SC2412K
	D7501–7508,7511–7518		UDZS5R1(B)
	D7601		RB501V-40

MISCELLANEOUS

	L7301	INDUCTOR	LCKAW330J2520
	L7507,7508	INDUCTOR	CTF1389
	JA7501,7503	BNC CONNECTOR	DKN1267
	JA7502	1P PIN JACK	VKB1122
	JA7505	BNC CONNECOR	DKN1268
	KN7001,7002	TERMINAL	VNF1084
	S7401	SWITCHE	VSH1020
	X7301	CRYSTAL RESONATOR	ASS1056
	CN7001	29P FFC CONNECTOR	VKN1433
	CN7504	4P MINI DIN SOCKET	AKP7179

RESISTORS

	R7501		RS1/10S75R0F
	R7502–7508		RS1/10S68R0D
	R7512		RS1/10S1R0J
	Other Resistors		RS1/16S###J

Mark	No.	Description	Part No.

CAPACITORS

	C7001,7602		CKSRYF105Z10
	C7002,7306		CKSRYB102K50
	C7101–7106,7505		CKSRYB104K16
	C7107–7110,7201,7202		CKSRYB105K6R3
	C7111,7207,7208,7308		CEVW101M16
	C7112,7507,7508		CEAT471M6R3
	C7203,7205,7206,7215		CEVW100M10
	C7216,7307,7313,7914		CEVW100M10
	C7301,7309,7310		CKSRYB105K6R3
	C7302		CCSRCH150J50
	C7303		CCSRCH180J50
	C7304,7305		CCSRCH240J50
	C7311,7605		CEVW101M16
	C7502–7504,7506		CEAT102M6R3
	C7604		CKSQYB225K10
	C7606		CEVW221M6R3
	C7702		CCSRCH471J50
	C7703–7705,7903		CKSRYB104K16
	C7706,7920		CEHVKW470M16

C AJKB ASSY

SEMICONDUCTORS

	IC8101		PCM1742KE
	IC8201	LOGIC IC	BU4052BCFV
	IC8202–8205		NJM4565M
⚠	IC8601		NJM78M05FA
	IC8701		TC74LCX157FTS1
	IC8702,8703		SP232EEN
	IC8801		S-35190A-T8
	IC8802	EEPROM	BR24L32F-W
	Q8201,8301–8303		DTC114YK
	Q8304,8314		2SA1037K
	Q8305,8315		2SD2114K
	Q8311–8313, 8710		DTC114YK
	Q8501		2SC2412K
	Q8701		2SC1740S
	Q8702–8709		DTA124EK
	D8501–8508,8603		UDZS6R2 (B)
	D8509, 8510, 8601,8651		1SS355
	D8701		UDZS3R3 (B)
	D8702–8709		UDZS5R1 (B)
	D8724, 8725		1SS355

MISCELLANEOUS

	JA8503, 8504	2P PIN JACK	PKB1034
	JA8505	MULTI JACK	VKX1013
	JA8701	BNC CONNECTOR	DKN1400
	KN8001	SCREW TERMINAL	VNE1948
	KN8002	TERMINAL	VNF1084
	VR8501	TURN TYPE VR	DCS1090
	S8701	SLIDE SWITCH	DSH1064
	X8801	CRYSTAL RES.(32.768MHz)	BSS1115
	CN8001, 8701	24P FFC CONNECTOR	VKN1814
	CN8702	D-SUB 15P CONNECTOR	DKN1435
	CN8703	9P D-SUB SOCKET	AKP1213

Mark	No.	Description	Part No.
RESISTORS			
	R8201, 8206, 8209, 8217		RN1/16SE4302D
	R8202, 8204, 8212, 8215		RN1/16SE2202D
	R8727		RS1/10S75R0F
	R8901		RS1/10S0R0J
	Other Resistors		RS1/16S###J
CAPACITORS			
	C8001, 8005, 8102, 8701		CKSRYB102K50
	C8002, 8501, 8504, 8505		CKSRYB105K6R3
	C8006, 8101, 8103, 8104		CKSRYB104K16
	C8007, 8107, 8220, 8222		CEVW101M16
	C8009, 8726, 8734		CEAT471M6R3
	C8108, 8110, 8604		CEVW221M6R3
	C8109, 8229, 8232		CEHVKW470M16
	C8201, 8202, 8205, 8206		CKSRYB104K16
	C8203, 8208, 8212, 8219		CCSRCH330J50
	C8204, 8207, 8215, 8218		CCSRCH271J50
	C8209, 8211, 8213, 8216		CKSRYB104K16
	C8217, 8506, 8601, 8602		CKSRYB104K16
	C8223, 8225, 8227, 8230		CEVW101M16
	C8231, 8511, 8605, 8608		CEVW101M16
	C8502, 8503		CCSRCH221J50
	C8509, 8510		CCSRCH331J50
	C8512		CEAT1R0M50
	C8513, 8514		CKSRYB105K6R3
	C8606, 8651, 8702		CKSRYB104K16
	C8652, 8653		DCH1243
	C8713–8724,8731,8733		CKSRYB104K16
	C8727, 8730		CEVW101M16
	C8732		CKSRYB102K50
	C8801		CCSRCH180J50
	C8802, 8803		CKSRYB104K16
	C8804		CCSRCH150J50

D USBB ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D9705-9708		DAN217
MISCELLANEOUS			
	JA9702	USB CONNECTOR	DKN1417
	KN9701	TERMINAL	VNF1084
	CN9701	12P PH CONNECTOR	AKM1283
	All Resistors		RS1/16S###J
CAPACITORS			
	C9701–9704		CCSRCH470J50
	C9705, 9706		CKSRYB105K6R3
	C9711, 9712		CEAT101M16

E KEYB ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC9001		RPM7240-H4
	Q9001–9005,9011-9015		DTA124EK
	D9001–9004		SLI-343DCW (STU)
	D9005		SLR-343EBT (KLMN)
	D9011–9015,9021–9025		1SS355
	D9031–9035,9041–9045		1SS355
MISCELLANEOUS			
	S9011–9015,9021–9025	SW	VSG1024
	S9031–9035,9041–9045	SW	VSG1024
	CN9001	24P FFC CONNECTOR	VKN1284
	CN9002	CONNECTOR	CKS2977
	All Resistors		RS1/16S###J
CAPACITORS			
	C9001		CKSRYB105K6R3
	C9002		CEAT470M10

F PWSB ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	Q9501–9503		DTA124EK
	D9501		SLI-343DCW(STU)
	D9503		1SS355
	D9505		TLGE68TG(NP)
MISCELLANEOUS			
	S9501	TAKT SWITCHE	VSG1024
	CN9501	CONNECTOR	CKS2977
	All Resistors		RS1/16S###J
CAPACITORS			
	C9501		CKSRYB105K6R3

G LOAB ASSY [VWG2426]

Mark	No.	Description	Part No.
SWITCHES and RELAYS			
	S101	REAF SWITCH	VSK1011
MISCELLANEOUS			
	CN601	KR CONNCTOR	S5B-PH-K-S
	CN602	KR CONNCTOR	S2B-PH-K-S
	PRINTED CIRCUT BOARD(LOAB)		VNP1912

H SYPS ASSY [DWR1401]

SYPS assembly has no service part.

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Items

[Mechanism Part]

❶ Tangential and Radial Height Coarse Adjustment

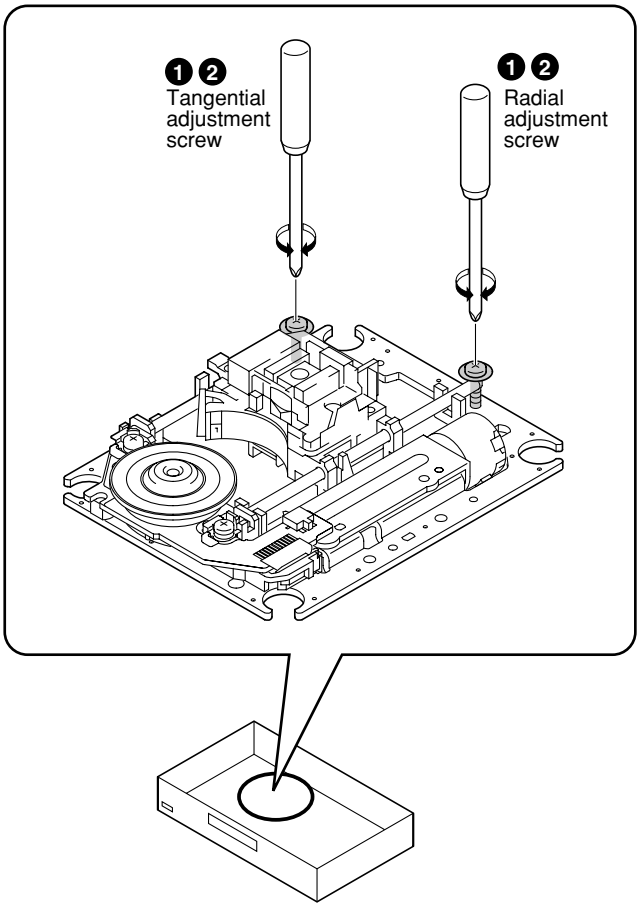
❷ DVD Jitter Adjustment

[Electrical Part]

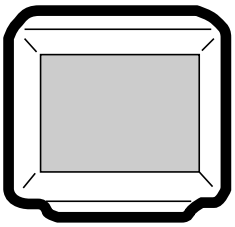
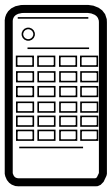
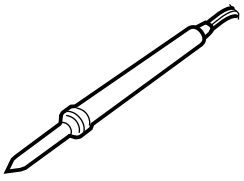
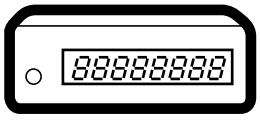
① 27.000 MHz Clock Adjustment

■ Adjustment Points (Mechanism Part)

Cautions: After adjustment, adjustment screw locks with the Screw tight.



6.2 JIGS AND MEASURING INSTRUMENTS

 ⊕ Screwdriver (large)	 ⊕ Screwdriver (medium)	 ⊖ Screwdriver (small)	 TV monitor	 Test mode remote control unit (GGF1381)
 ⊕ Precise screwdriver	 DVD test disc (GGV1025)	 Soldering iron	 Frequency counter Display digit ≥ 8-digit	Screw tight (GYL1001)

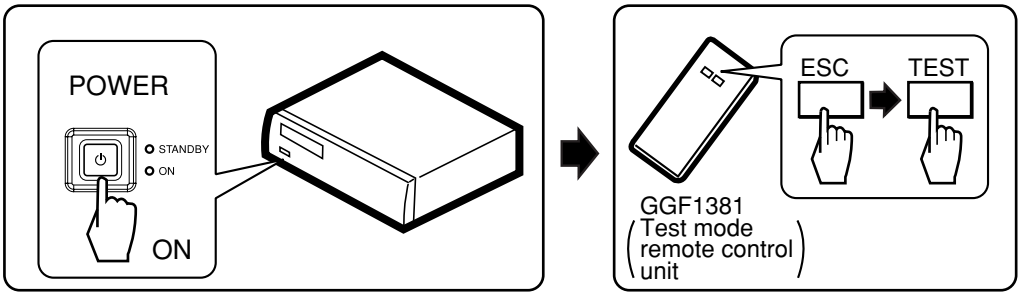
6.3 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points	
■ Exchange Parts of Mechanism Assy		
Exchange the Pickup	Mechanical point	❶, ❷, ❸ ＊ After adjustment, screw locks with the Screw tight.
	Electric point	———
Exchange the Traverse Mechanism	Mechanical point	❸
	Electric point	———
Exchange the Spindle Motor	Mechanical point	❷ ＊ After adjustment, screw locks with the Screw tight.
	Electric point	———
■ Exchange PCB Assy		
Exchange PC Board LOAB and DVDM ASSYS	Mechanical point	———
	Electric point	———

Note: ① is already adjusted.

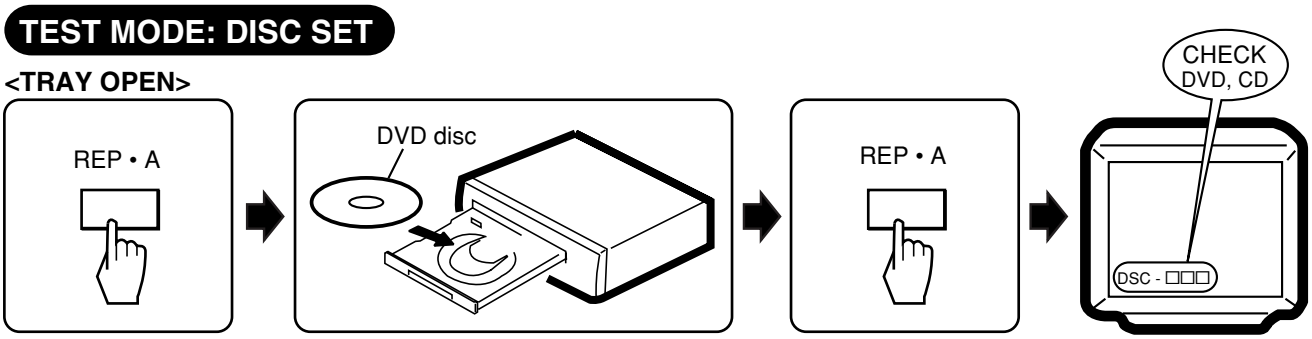
6.4 TEST MODE

TEST MODE: ON



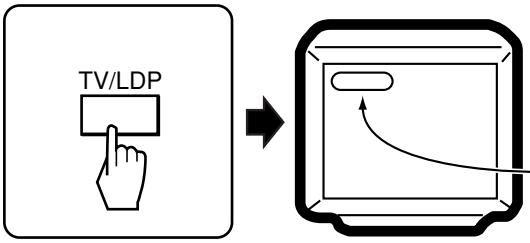
TEST MODE: DISC SET

<TRAY OPEN>



TEST MODE: PLAY

<PLAY>

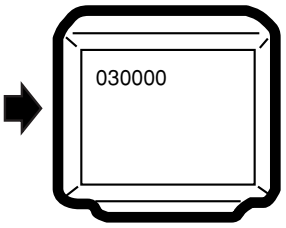


CAUTION:
Perform only trace, video and audio outputs are nothing.

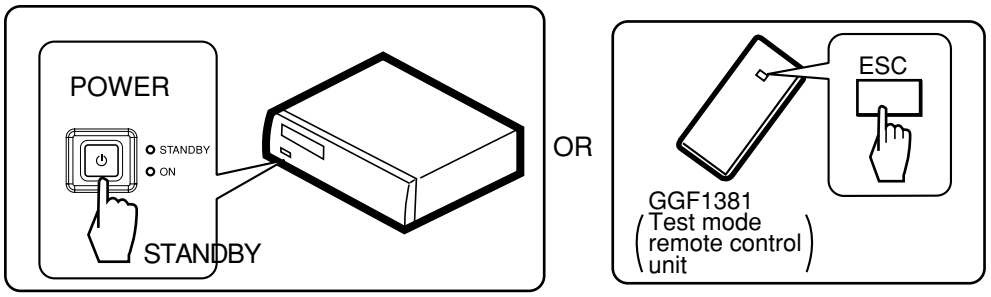
< When playback with the target address of disc (DVD)>

For example, when playback with # 30000

During PLAY [+10] ➡ [3] ➡ [0] ➡ [0] ➡ [0] ➡ [0] ➡ [CHP/TIM] Press keys in order



TEST MODE: OFF

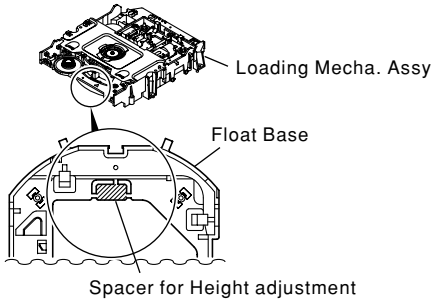


6.5 MECHANISM ADJUSTMENT

1 Tangential and Radial Height Coarse Adjustment

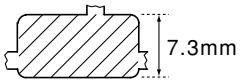
START

- Remove the Loading Mecha. Assy.
- Remove a Spacer for height adjustment attached to the back side (shaded area) of the Loading Mecha. Assy (Float Base) with nippers.

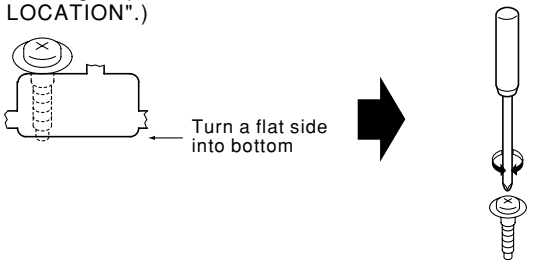


Note:
Before removing the flexible cable for the pickup, soldering of the pickup circuit is necessary.
For details, see "7.6 DISASSEMBLY".

Cautions:
Keep spacer for future use.
(used only for 2003 models)

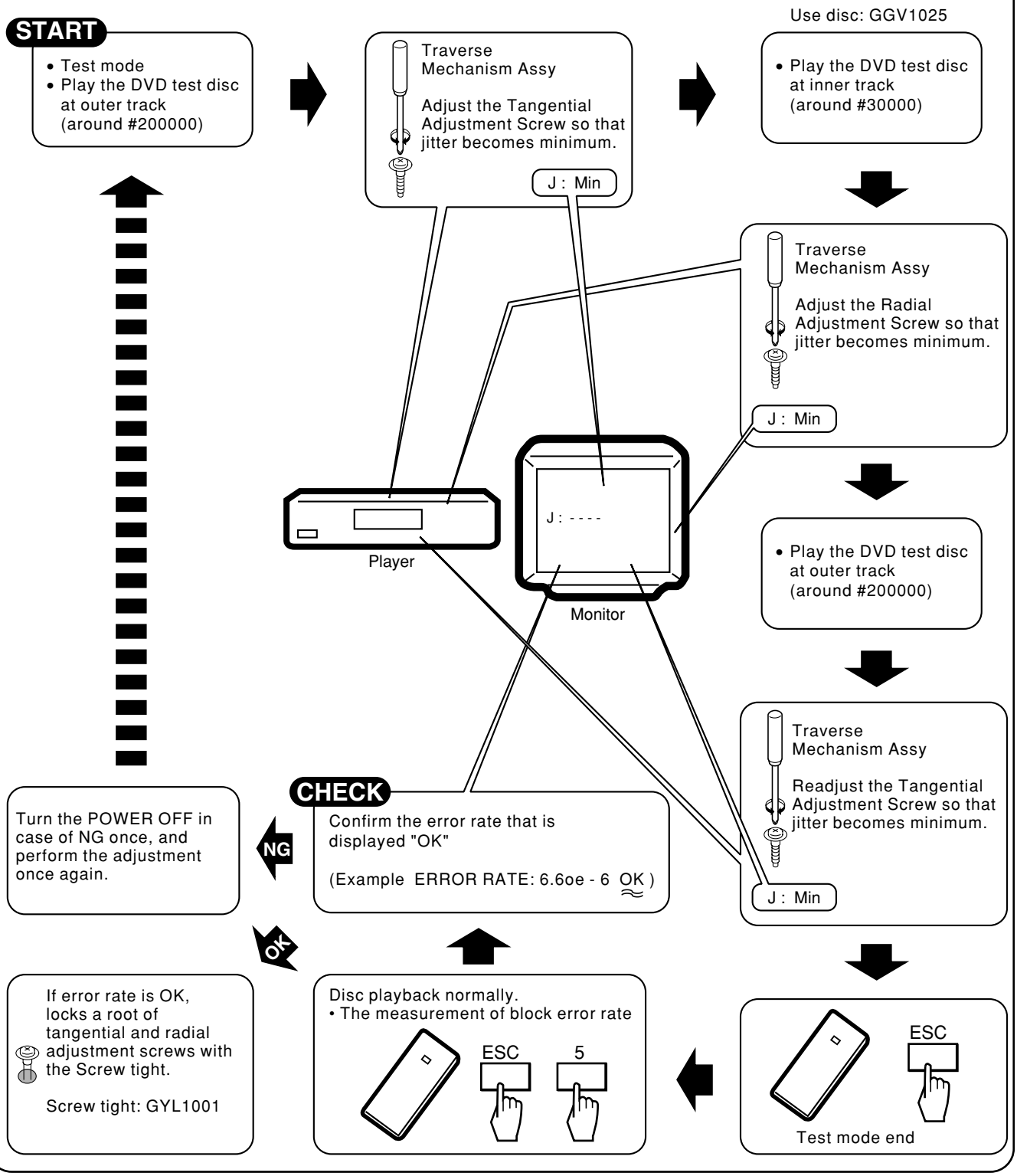


Put a spacer between a Tangential (or Radial) adjustment screw and Mechanism Base and turn each screw to adjust the height. (Refer to "6.1 ADJUSTMENT ITEMS AND LOCATION".)



2 DVD Jitter Adjustment

- Playback method of inner and outer address for the purpose is refererd to "6.4 TEST MODE".
- Jitter indication of the monitor is refererd to "7.1.2 TEST MODE SPECIFICATIONS".



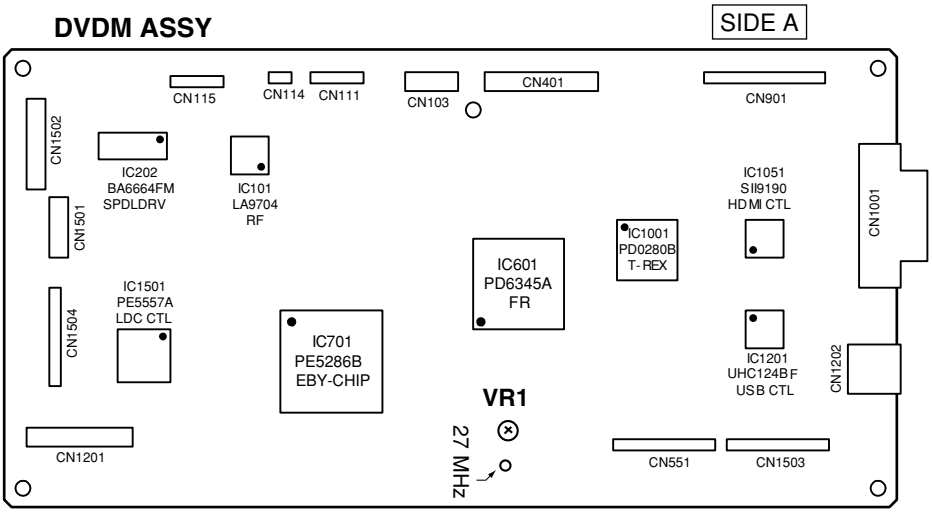
3

• Reset Playback time B, referring to "7.1.7 Accumulated Power-on Time and Playback Time."

6.6 ELECTRICAL ADJUSTMENT

Note: If adjustments of the Traverse mechanism are inappropriate:
- The magnitude of jitter and the error rate increase.
- The playability of a disc is deteriorated.
- In some cases, block noise may appear.

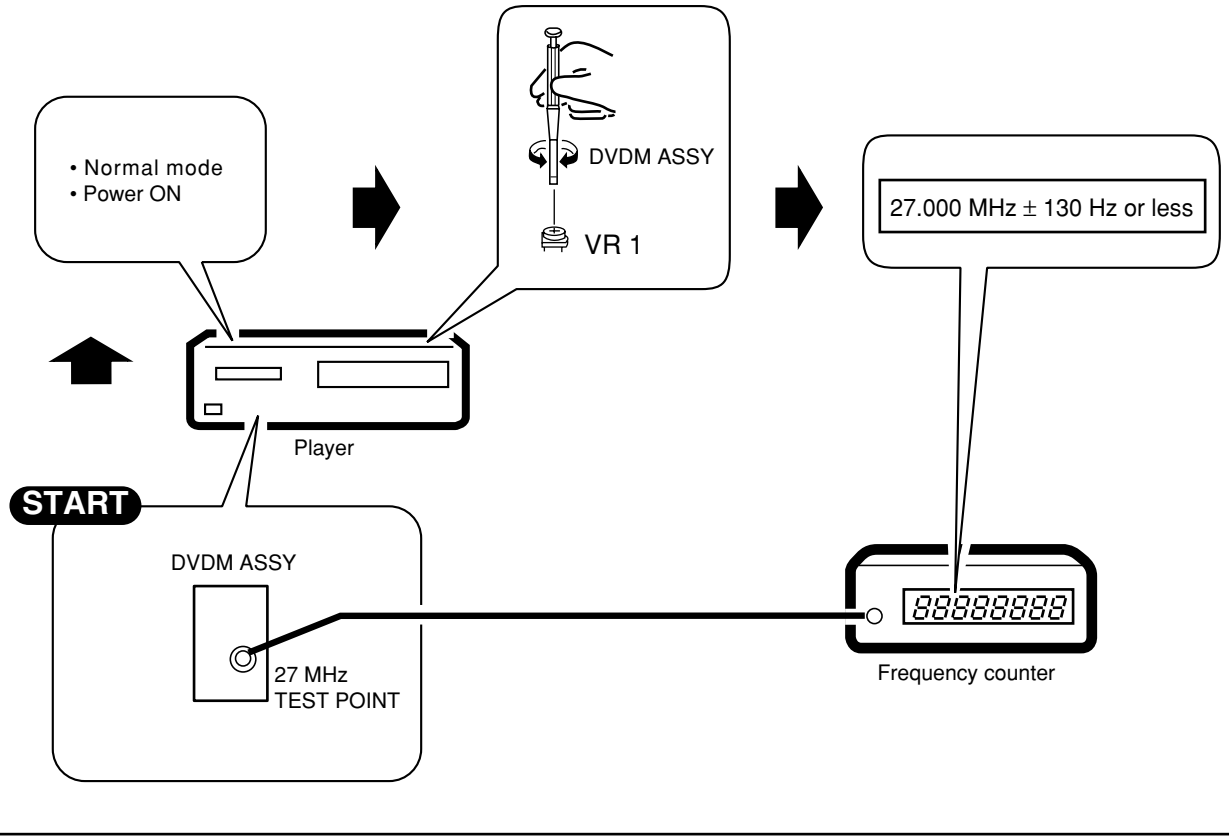
■ Measuring and Adjustment Points



■ Adjustment

① 27.000 MHz Clock Adjustment

- If adjustments are inappropriate, color dislocation occurs.



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 SELF-DIAGNOSIS FUNCTION OF PICKUP DEFECTIVE

This unit can confirm the laser diode current value (DVD: 650 nm, CD: 780 nm) of pickup on the Test Mode screen.
(Press the [ESC] → [TEST] keys in order on the test mode remote control unit (GGF1381) to enter the test mode.)

It's effective in case of the following condition.

Symptom

- "No Disc" displays in LCD.
- Player does not playback, etc..

Procedure of Self-Diagnosis

① Enter the Test mode.

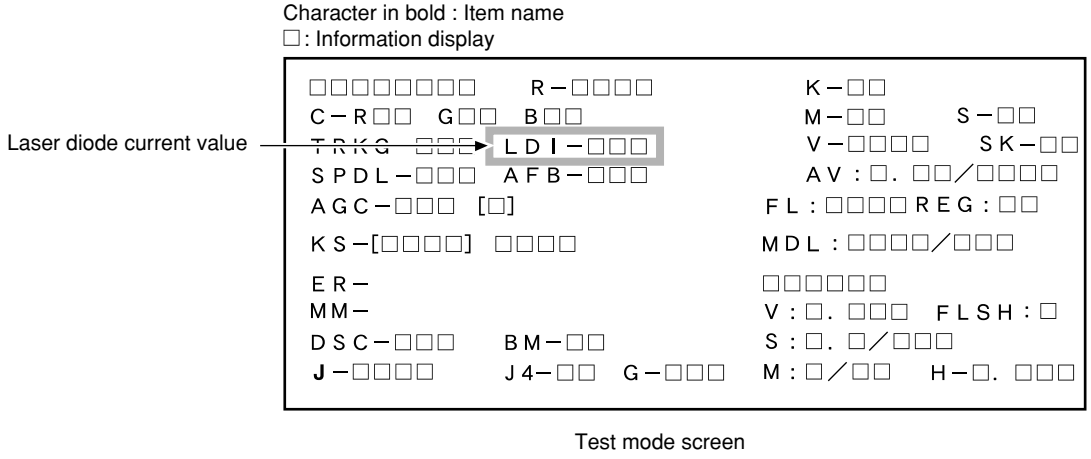
② When diagnosing the 650 nm laser diode:
Press the [TEST] → [1] keys in order, and turn on the laser diode (It light-up for nine seconds.).
When diagnosing the 780 nm laser diode:
Press the [TEST] → [4] keys in order, and turn on the laser diode (It light-up for nine seconds.).

(When let it turn on once again after performed ② once,
After pressed [REP.B] key once
650 nm: Press the [TEST] → [1] keys in order
780 nm: Press the [TEST] → [4] keys in order)

③ Confirm the indicated value of the laser diode current (LDI). (Refer to following figure.)

④ **When indicated value is more than 140, pickup is defective. → Replacement is necessary**
Replace the Traverse Mechanism Assy or Pickup.

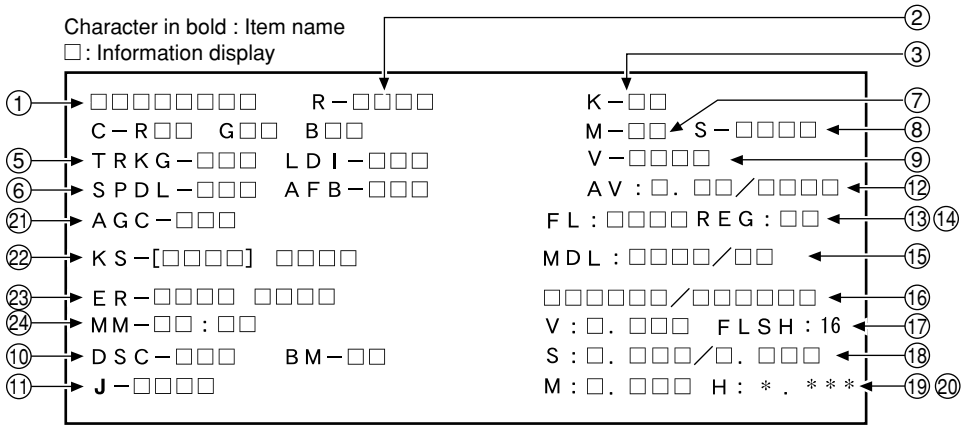
Note : When a DVD disc or a CD disc is played in the test mode, this function is effective.



Test mode screen

7.1.2 TEST MODE SPECIFICATIONS

Display Specification of the Test Mode



① **Address indication**
The address being traced is displayed in number.
(as for the DVD, indication of decimal number is possible.)
DVD : ID indication (hexadecimal number, 8 digits)
[＊＊＊＊＊＊＊＊]
CD : A-TIME (min. sec.) [0 0 0 0 ＊＊＊＊]

② **Code indication of remote control unit [R – ＊＊＊＊]**
In case of double code, display a 2nd code.

③ **Main unit keycode indication [K – ＊＊]**

⑤ **Tracking status [TRKG – ＊＊＊]**
Tracking on : [ON]
Tracking off : [OFF]
Laser diode current value [LDI - ＊＊＊]

⑥ **Spindle status [SPDL – ＊＊＊]**

Spindle accelerator and brake, free-runnimg	[A/B]
FG servo	[FG]
Rough, velocity phase servo	[SRV]
Offset addition, rough, velocity phase servo	[O_S]
AFB status	[AFB - ＊＊]
ON	[ON]
OFF	[OFF]

⑦ **Mechanism (loading) position value [M – ＊＊]**
Open state : [01]
During opening : [02]
Close state : [03]

⑧ **Slider position [S – ＊＊＊＊]**
Inside SW ON : [IN]
Inside SW OFF : [CD]

⑨ **Output video system [V – ＊＊＊＊]**
NTSC system : [NTSC]
PAL system : [PAL]
Automatic setting : [AUTO]

⑩ **Disc sensing [DSC – ＊＊＊]**
The type of discs loaded is displayed.
Unknown : [NON]
DVD : [DVD]
CD : [CD]

⑪ **Jitter value [J – ＊＊＊＊＊＊＊＊]**

⑫ **Version of the AV-1 chip / version of firmware [AV: ＊＊ / ＊＊＊＊＊＊＊＊]**

⑬ **Version of the sub microcomputer [FL: ＊＊＊＊]**

⑭ **Region setting of the player [REG: ＊＊]**

⑮ **Destination setting [MDL: ＊＊＊＊ / ＊＊]**
Four characters in the front represent the type of model.
Three characters in the back represent the destination code.
V8KJ: /J, K: /KU, R: /NK, WY: /WY

⑯ **Part number of the flash ROM and system controller [＊＊＊＊＊＊ / ＊＊＊＊＊＊]**

⑰ **Version of the flash ROM [V: ＊. ＊＊＊]**
Flash ROM size [FLSH = 16]

⑱ **Revision of the system controller [S: ＊ . ＊＊＊ / ＊＊＊]**

⑲ **Revision of the DVD mechanism controller [M: ＊ . ＊＊＊]**

⑳ **Fixed indication of version of the Host microcomputer [H: ＊ . ＊＊＊]**
Host CPU for iLink does not load, because this unit is non correspondence for iLink.

㉑ **AGC setting [AGC – ＊＊＊ [＊]]**
AGC on : [ON]
AGC off : [OFF]

㉒ **FTS servo IC information**
DSP coefficient indication[KS – [＊＊＊＊] ＊＊＊＊]
Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.

㉓ **Error rate indication**
① C1 error value of CD [ER – C1 ＊＊＊＊]
② C1 error value of DVD [ER – ＊＊＊＊ ＊＊＊＊]

㉔ **Internal operation mode of mechanism controller [MM – ＊＊ : ＊＊]**
Internal mechanism mode (2 digits) and internal mechanism

Test Mode Functional Specification

① Test mode entry

In the power ON state, press the [ESC] (A8-5F) key and [TEST] (A8-5E) key in order of the Test mode remote control unit.

- Light the LCD and all LEDs, and goes out the LCD and LEDs when pressing the keys of something.
- OSD displays during test mode, refer to the "Display Specification of the Test Mode".

② Release the Test mode

- Turn off the power.
- Press the [ESC] (A8-5F) key of the Test mode remote control unit.

③ Tray open / close

- Press the [REPEAT A-B] (A8 - 48) key of the Test mode remote control unit.

④ Playback stop

1. Press the [REPEAT] (A8 - 44) key of the Test mode remote control unit from the playback state.
2. Press the [STOP] key of the Test mode remote control unit from the playback state.

⑤ LD ON

DVD : Press the [TEST] (A8-5E) and [1] (A8-01) keys in order, and turn on the laser diode (650 nm).
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780 nm).

⑥ Focus on / sweep

1. Lock the focus by pressing the [TEST] (A8-5E) and [2] (A8-02) keys in order.
2. Repeat focus sweep by pressing the [TEST] (A8-5E) and [3] (A8-03) keys in order.

⑦ Spindle FG servo

Press the [TEST] (A8-5E) and [5] (A8-05) keys in order,then rise up the spindle and FG servo becomes on.

⑧ Tracking open / close

1. Open tracking by pressing the [STEP FWD] (A8-54) key of the Test mode remote control unit in the play state.
2. Close tracking by pressing the [STEP REV] (A8-50) key of the Test mode remote control unit in the play state.

⑨ Slider in / out

Slider in : In the tracking off state, press the [SCAN REV] (A8-11) key of the Test mode remote control unit.
Slider out : In the tracking off state, press the [SCAN FWD] (A8-10) key of the Test mode remote control unit.

⑩ Play (perform only the ID search and trace to the specified location)

Press the [TV/LDP] (A8-0F) key of the Test mode remote control unit from the stop state.
Perform only trace, video and audio outputs are nothing.

⑪ Screen display ON/OFF

1. Turn off the display by pressing the [A. MON] (A8-1E) key of the Test mode remote control unit.
2. Turn on the display by pressing the [DISPLAY] (A8-43) key of the Test mode remote control unit.

7.1.3 SELF-DIAGNOSIS FUNCTION

SELF-DIAGNOSIS

Two types of self-diagnosis are provided with this unit:
(1) Self-diagnosis that is performed each time the power is turned on
(2) Self-diagnosis upon request, activated using the remote control unit

1. Diagnostic items and result indications when self-diagnosis is performed when the unit is turned on

When the player is started up after it is turned on, whether the peripheral devices of the microcomputer are operating normally is checked. Any error detected will be displayed on the LCD. The diagnostic items are as shown below:

① Are data written properly in the flash memory (IC603)?
② Is Servo DSP (IC101: LC78652W) operating properly?
③ Is the video encoder (IC903: ADV7320KSTZ, IC901: CD0040AF) operating properly? (Check the communication of the 12C bus.)
④ Is the EBY chip (IC701: PE5286B) operating properly? (Check writing to and reading from the register.)
⑤ Can writing to and reading from the SDRAM of the EBY chip performed properly?
⑥ Is the AV decoder (IC751: M65776BFP) operating properly? (Check writing to and reading from the register.)
⑦ Can writing on and reading from the SDRAM of the AV decoder performed properly?
⑧ Is DMA between the EBY chip and the AV decoder performed properly?
⑨ Is the HDMI transmitter (IC1051: SII9190CTG64) operating properly? (Check the communication of the I²C bus.)
⑩ Is the T-REX (IC1001: PD0280B) operating properly? (Check the communication of the I²C bus.)
⑪ Can writing to and reading from the external SRAM (IC602: CY62148VLL-70ZI) of the system computer performed properly?
⑫ Is the USB controller (IC1201: UHC124BF) operating properly? (Check writing to and reading from the register.)

If any error is detected during the above-mentioned self-diagnosis, the indications shown below will be displayed on the LCD:

In a case of an error for Item ①

FLASH RD	A hardware failure of the flash memory may be the cause. Replace the DVDM Assy.
FLASH SIG	
FLASH ID	If the same error indication appears after downloading the firmware (using the RS-232C port), replace the DVDM Assy.
FLASH SUM	

In a case of an error for Item ②

SDSP RWER

In a case of an error for Item ③

VIDEO ENCODER NG ADV	VIDEO ENCODER NG PROU

In a case of an error for Item ④

F.E REGISTER ACCESS NG

In a case of an error for Item ⑤

F.E SDRAM ACCESS NG

In a case of an error for Item ⑥

```
AV DECODER
REG. ACCESS NG
```

In a case of an error for Item ⑦

```
AV DECODER
SDRAM ACCESS NG
```

In a case of an error for Item ⑧

```
F.E -> AV DECODER
DMA NG
```

In a case of an error for Item ⑨

```
HDMI TRANSMITTER
ACCESS NG
```

In a case of an error for Item ⑩

```
T-REX
ACCESS NG
```

In a case of an error for Item ⑪

```
SYSCON SRAM
ACCESS NG
```

In a case of an error for Item ⑫

```
USB CONTROLER
ACCESS NG
```

⑬ If the data stored in the EEPROM cannot be read, the indications shown below will be displayed (this failure is not generated during self-diagnosis):

```
EEPROM
READ NG
```

2. Self-diagnosis activated, using the remote control unit

When the procedures described in "7.1.6 Error History" are followed to display the error history, self-diagnosis of the peripheral devices is also performed, and its results are indicated at the same time. The diagnostic items are:

① Writing to then reading from the register of the AV decoder
② Writing to then reading from the external SDRAM of the AV decoder
③ DMA transfer from the front end (EBY-CHIP) to the AV decoder
④ Writing to then reading from the register of the video encoder
⑤ I^2C communication with the HDMI transmitter
⑥ I^2C communication with the T-REX
⑦ Reading from the register of the USB controller
⑧ Writing to then reading from the EEPROM

The indications to be displayed in the error history are as follows:

AV_1 : Result of Item ① (OK/HOST BUS NG)
AV_2 : Result of Item ② (OK/AV1-SDRAM BUS NG)
F.E. : Result of Item ③ (OK/FE-AV1 DMA NG)
Ve : Result of Item ④ (OK/NG ADV, >ADV, >PRO)
DVI : Result of Item ⑤ (OK/NG)
TREX : Result of Item ⑥ (OK/NG)
USB : Result of Item ⑦ (OK/NG)
PROM : Result of Item ⑧ (OK/NG)

7.1.4 FUNCTIONAL SPECIFICATION OF THE SERVICE MODE

• LCD indication of EDC / ID error (short cut function)

Indicate it in LCD with the "ESC"+"CX" keys (LD remote control unit).
Indication is released with the "ESC" key during display.

LCD indication contents

00 / 00 / 01 ∗

- 01 — Indicate number of the location that caused EDC and ID errors
- 00 — Retry number of times at having caused ID error (error is indicated only in the occurring moment)
- 00 — Retry number of times at having caused EDC error (error is indicated only in the occurring moment)

∗ Mark: When even once causes AV1 error, lights.

• Screen display of the service mode

Indicate to the screen with the "ESC"+"CHP/TIM" keys.
Release the indication with the "ESC" key.

Indication contents

① ID Address

② DVD in playback: Error rate regular indication and exponent indication
CD/VCD in playback indicates the number of correct frame of C1 error /5 seconds.

③ Self diagnosis indication
Indicate the self diagnosis result.
Self Check : During diagnoses
Self Check OK : Abnormality is not found.
Self Check Error : Abnormality is found.
Indicate the mechanism error history and self diagnosis result by pressing the "CHP / TIM" key once again.
Afterwards press the "CHP / TIM" key with toggle and change the display.
Indication of the mechanism error history and self diagnosis result refer to "7.1.3 Self diagnosis function".

④ Error information indication of the AV decoder
(a: The left half of 4-10 lines)
When a retry occurred in reading from the disc, a history indicates the occurrence location and the occurrence reason.
History is indicated to past seven times.
Eight columns of the beginning show the physical address which occurred of retry.
As for four columns of next, bitmap indicates EDC status. LSB shows the first sector during a block and MSB shows a last sector.
Following field indicates the retry number of times.
One digit in front of " / " shows number of times of the retry by EDC Error which occurred in the same block in succession.

One digit after " / " shows number of times of the retry by ID Check Error which occurred in the same block in succession.
" * " of last one digit shows the EDC Check NG Count Over.
" # " shows the ID Check NG Count Over.
When " * " and " # " are not indicated, show that data were rightly readable by retry process.

(b: The right half of 4-10 lines)
Indicate the error information that detected with the Audio/Video Decoder. When error occurred, a history indicates the occurrence time and the occurrence reason. History is indicated to past seven times.
Field in front of ":" indicates the error information of Audio/Video Decoder.

• Specification for the Audio/Video Decoder
bit 7: VLD Fatal Error detection
bit 6: VLD Not Fatal Error detection
bit 5: Number of Macro Block mismatch
bit 4: Decode error
bit 3: VLD Sequence Layer Fatal Error detection
bit 2: VLD Picture Layer Fatal Error detection
bit 1: VLD Slice Layer Fatal Error detection
bit 0: Start-up Sequence Time-out Error detection
Following field in " : " indicates a value of STC (System Time Clock) which detected the above Audio/Video Decoder error.

∗ When often perform the switch of debug screen, an error history will be increased.
As for this, CPU power is used for update of OSD drawing, symptoms occur so that control of VBR Buffer is not in time.

7.1.5 ERROR DISPLAY

Error codes that are displayed on the LCD display without using the remote control unit

LCD Display	Possible causes	Operation of the unit
AV1 VER	AV-1 chip is not a match with the program of system controller	The sound may not out with the specific audio.
FLASH ID	Difference in versions of the internal ROM of the system controller and of the flash ROM, or bus line failure or reverse installation	No operation
FLASH WRP	Write protect error of the flash ROM	No operation
FLASH SIG	Difference in part number of the flash ROM (When the ROM which could't be used was used.)	No operation
FLASH SUM	Check sum error of the flash ROM (It exceeds the regular size.) or reverse installation (Hardware is unusual.)	No operation
FLASH SIZ	Size error of the flash ROM (Use 4 or 8 M-bit.)	No operation
ILLGAL	The system controller fetched a code other than an operation code (Hardware is unusual.)	No operation
RESERVE	Undefined interrupt (Hardware is unusual.)	No operation

Error codes that are displayed on the LCD display by using the remote control unit (Mechanism controller error)

To display: ESC + DISPLAY + DISPLAY; Location of the display: At the two digits of center of the LCD display
To display the error history: ESC + DISPLAY + One shot; Location of the display: TV screen

LCD	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
11	Search timeout	Search could not be complete within 7 seconds.	Search could not be complete within 7 seconds, and it could not enter the target area within 7 seconds by VCD scan.	CD : Stops, DVD: Continues operation
12	Search retry error	More beyond the target while the read-in search was converging. A search could not be completed after 3 retries while the unit was tracing 11 tracks. A search could not be completed after retry when timeout occurs at read-in.		CD: Stops, DVD: Continues operation
19	Tracing timeout while converging	Timeout (10.5 seconds) while tracing at the stage of convergence of a search.		Stop
1B	Index 0 search error		During Track (Index) Search, the search for the beginning of a program could not be completed within 3 seconds (20 seconds in the case of Index Search) after positioning based on the TOC data was completed.	Stop
1C	Embossment plunge error (only a model corresponding to RW)	Plunged into unreadable embossment of DVD-RW player.		1. In wobble nothing (error distinction) : search to address 2E400h 2. In wobble existence: Tray open
22	Timeout of slider inner circumference	Inside switch could not ON within 3 seconds.		Stop
23	Timeout of slider outer circumference	Inside switch could not OFF within the following times: at ATB: 2 seconds, at Backup: 2 or 2.02 seconds.		Stop
33	No FOK pulse during playback	When the focus was deviated continuously 20 times.		Adjusts focus at the innermost circumference and tries to return to its position where the error was generated (for 3 times),then opens. If the same error persists after one retry, the tray opens. (No FOK pulse)
38	Disc-type-sensing error	Were not able to playback from the disc distinction process. PLAY or STOP was not completed by backup operation of the disc distinction. Distinguished it from the blank disc in the ATB process completion.		Open

LCD	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
39	SGC converge timeout	SGC could not converge during detects the peak		Open
41	Spindle timeout	The unit did not enter Stop mode within 10 seconds of issuance of a Stop command. Disc distinction is not completed even if passes for 10 seconds after the spindle turned.		Stop
48	Spindle FG transition timeout	Did not reach to the rotating speed that ATB was possible for less than 10 seconds. Did not reach aim CAV lock speed (high: 10%, low: 50%) for less than 10 seconds. CAV process passed more than 5 seconds or abnormal speed was detected. Spindle does not lock for less than 3 seconds in the BCA read start or end.		Stop (FG timeout)
49	Spindle PLL transition timeout	CAV process passed more than 5 seconds. Abnormal speed was detected.		Stop ("73" is displayed during starting process.)
4A	Spindle lock timeout	Spindle could not lock more than 1.5 seconds before start the AFB.		Stop ("73" is displayed during starting process.)
51	Auto sequence timeout of peak detection	ABUSY did not return within 1 second after the DDTCT (peak detection) command was sent.		Stop
52	Auto sequence timeout of focus jump down	ABUSY did not return within 30 mS after the FJMPD (Focus jump 1 to 0) command was sent.		Open
53	Auto sequence timeout of focus jump up	ABUSY did not return within 30 mS after the FJMPU (Focus jump 0 to 1) command was sent.		Open
54	Auto sequence timeout of play AGC	ABUSY did not return within 50 mS after the GSUMON (play-AGC-measuring) command was sent.		Stop
55	Auto sequence timeout of disc-type-sensing	ABUSY did not return within 2 seconds after the DJSRT (disc-sensing) command was sent.		Stop
56	Auto sequence timeout of ATB2	ABUSY did not return within 1 second after the TBLOFS (Internal ATB after the completion of external ATB) command was sent.		Stop
57	Auto sequence timeout of tracking servo ON	ABUSY did not return within 0.5 sec. after the TSON (tracking servo ON) command was sent.		Stop
58	Auto sequence timeout of ATB1	ABUSY did not return within 0.2 sec. after the TBL (external ATB) command was sent.		Stop
59	Auto sequence timeout of focus gain adjustment	ABUSY did not return within 2 seconds after the FGN (focus gain adjustment) command was sent.		Stop
5A	Auto sequence timeout of tracking gain adjustment	ABUSY did not return within 2 seconds after TGN (tracking gain adjustment) command was sent.		Stop
5B	Auto sequence timeout of offset adjustment	ABUSY did not return within 1 second after the AVE (offset adjustment) command was sent.		Stop
5C	Auto sequence timeout of modulation factor measurement	ABUSY did not return within 200 mS after the ADJMIR (modulation factor measurement) command was sent.		Stop
5D	Auto sequence timeout of auto focus bias	ABUSY did not return within 2 seconds after the AFB (auto focus bias) command was sent.		Stop
5F	Auto sequence already busy	A command could not be sent because ABUSY was low. ABUSY did not return within 200 mS after TLV command was sent.		Stop
62	Pause retry error	Pause mode could not be restored within three retries after it had been released.		Continues operation
71	ID reading check during playback	An ID could not be read for 1 second or more.		Stop
72	Subcode check failure during playback		No frame could be read for 3 seconds or more.	Stop
73	ID can not read during startup	An ID could not be read within 1 second after the AFB tracking on.		Open (ID readout failure)

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
74	Subcode check failure during startup		Subcode could not be read within 1 second after the tracking on.	Open (Subcode readout failure)
A1	Communication timeout of DSP command	A command could not be issued to DSP because Command Busy (XCBUSY) was in force (XCBUSY = L) for a specified time (about 200 µS).		Open
A2	Communication timeout for reading DSP coefficient	Command Busy (XCBUSY) was in force for a specified time (about 200 µS) before and after a coefficient read command was issued to DSP, or the address echo-back after command issuance did not match the setup address.		Open
A4	Communication timeout for continuously writing DSP coefficient	Command Busy (XCBUSY) was in force for 200 µS during continuous coefficient writing, or before and after a continuous write command was issued to DSP.		Open
B1	Timeout error for backup	In the backup sequence, codes could not be read for fixed time.		Stop
B2	Retry error for backup	Cannot close tracking even if performs backup fixed number of times.		Stop
B3	Retry error for trace	During tracing, do not restore after the runaway detection backup was performed several times.		Stop
C3	Detection of tracking overcurrent	During playback, the overcurrent detection port was at L for 300 ms or more continuously.		Stop (the mechanical controller operates independently).
(C5)	Short-circuit test corresponding error	After the overcurrent detection (C3 error), furthermore the overcurrent detection port was at L for 300 mS or more continuously.		Turns off the power instantly (No indication on the LCD display and no writing to flash memory)
F5	Tray being pushed	The tray switch that had been Open mode was forcibly changed to a mode other than Open by an external force.		Close
F6	Code reading NG		(PRD) In the CD starting, when a subcode of TOC part was not readable, but the subcode of the program area was readable.	Search, scan and special playback prohibition, Playback as playback CD-R (PRD mode) as it is.
F8	Loading timeout	Loading or unloading could not be completed within a specified time (about 10 seconds). Though a portable cover is opening, when a close command was issued from the system controller.		Reverses the loading direction. It timeout is repeated upon retry, the unit stops.
FC	Focus	• Focus ON sequence could not be completed more than two seconds. • Auto sequence command was finished, actually focus ON was not completed. • Focus did not enter even if retried it eight times.		Stops wherever possible then opens (stops in the case of side B).

Error codes that are displayed on the LCD display by using the remote control unit (Device error)

To display: ESC + DISPLAY + DISPLAY; Location of the display: At the two digits of left of the LCD display

LCD	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
bit3=1 08 etc.	AV1 access error (read, write NG)			No operation or it becomes debugging indication if the power is able to ON.
bit2=1 04 etc.	EBY-CHIP access error			
bit0=1 01 etc.	SRAM access error			

7.1.6 ERROR HISTORY

How to display the error history

Use the dedicated remote control unit for service.
Press the ESC then CHP/TIM keys. The measured error rate value, results of self-diagnosis, and time data read from the real-time clock are displayed on the screen, as shown below:

```
00000000     05.07.08 14:25.55
ER(av):0.0e-0
Self Check OK
```

Press the CHP/TIM key again to display the detailed information of the error history and results of self-diagnosis.
In the example below, the part enclosed with the solid line (——) is the error history, and the part enclosed with the dotted line (---) is the results of self-diagnosis. (For details on the results of self-diagnosis, see "Self-diagnosis.")

Example:

```
F8 000123:45  01 AV_1:OK
C3 000079:41  03 AV_2:OK
F8 000052:17  02 F.E :OK
00 000000:00  00 Ve  :OK
00 000000:00  00 DVI :OK
00 000000:00  00 TREX:OK
00 000000:00  00 USB :OK
00 000000:00  00 PROM:OK
The latest error F8 means
 Loading error
```

How to translate the indications of the error history

The 2-digit hexadecimal number (F8, C3 or F8, in the above example) represents an error code, and the subsequent time indication (000123:45, 000079:41, or 000052:17, in the above example) represents the accumulated power-on time when a respective error was generated. The 2-digit number following the time indication is the number of times the respective error was generated. As to an error that was generated consecutively several times, the time indication is that for the last one. The bottom two lines are used for indicating the meaning of the latest error.

In the above example,

- An F8 error (loading error) was generated twice consecutively, and the accumulated power-on time upon generation of the second F8 error was 52 hours 17 minutes.
- Then a new error (C3: detection of the tracking excess current) was generated consecutively three times, and the accumulated power-on time upon generation of the last C3 error was 79 hours 41 minutes.
- A new F8 error (loading error) was generated at 123 hours 45 minutes.

Specifications of storage of the error history

If the same error is consecutively generated, as shown in the above example, the error counter counts the number of times it was generated, and the last generation time is stored in memory (as shown with the first F8 error generated twice).
If another type of error is generated, its error code and time of generation are separately stored in memory. If that error is generated consecutively several times, the error counter counts the number of times it was generated, and the latest generation time is stored in memory (as shown with the second C3 error generated three times). Then if any error other than C3 is generated, its error code and time of generation are separately stored in memory, even if the same error code (F8 error, in the above example) already exists in the error history.

A maximum of 16 logs of errors can be recorded. The maximum count of generations per log is 255. In the above example, 3 logs are recorded (nonconsecutive F8 errors that were generated for the first and third times are counted as two errors.)
If the error count exceeds 16, the oldest error will be erased each time a new error is added.

As the maximum number of errors that can be displayed on one page is 8, if the number of errors is 9 or more, switch between Page 1 (No. 1-8 logs) and Page 2 (No. 9-16 logs) by pressing the CHP/TIM key.

How to clear data of the error history

The data of the error history can be cleared by issuing the "EE0016EC" RS-232C command.

How to copy data of the error history to a USB memory device

The data of the error history can be copied to a USB memory device, using SAVE ERROR LOG in the ADV.SETUP menu.

Filename : The filename is the serial number of the product (excluding two characters that represent the destination), and its extension is err.
File format : Text
Content of the file : The following data are recorded:

① Serial number of the product
② Accumulated power-on and playback time when copying to a USB memory device is performed
③ Content that is indicated on the screen, i.e., error code, accumulated power-on time when the error is generated, and the number of times the error was generated

Example: FAMP000009.txt

```
Serial Number=FAMP000009TP
Operating Time
Power On=002092:12 [002092:11]
Play=001850:27 [001850:27]
Error History
F8  000123:45 01
C3  000079:41 03
F8  000052:17 02
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
00  000000:00 00
```

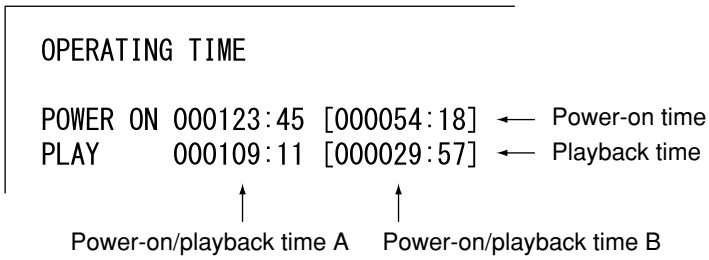
7.1.7 ACCUMULATED POWER-ON TIME AND PLAYBACK TIME

Displaying the accumulated power-on time and playback time

The accumulated power-on time and playback time are displayed on the screen and the LCD when the POWER key on the main unit is pressed while the DISPLAY key is held pressed.
Two meter systems are provided with this unit: one that cannot be reset (hereinafter called power-on/playback time A) and another that can be reset (hereinafter called power-on/playback time B).

Screen display

On the screen, both power-on/playback time A and B are displayed, as shown below:



LCD display

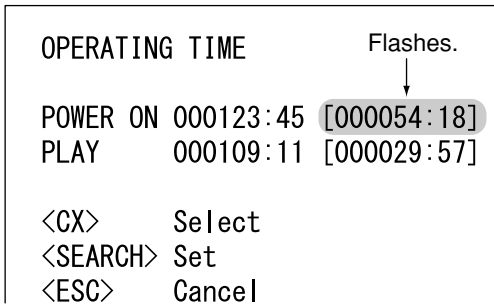
Only Power-on/playback time A is displayed on the LCD display.

How to reset Power-on/playback time B

The power-on time (POWER ON) and playback time (PLAY) can be separately reset.
You can, for example, reset only the power-on time when the POWER SUPPLY Unit is replaced, and reset only the playback time when the Mechanism Assy is replaced.

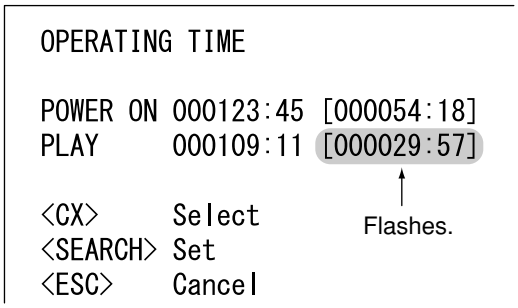
How to reset

① Press the POWER key on the main unit while holding the DISPLAY key pressed to display the accumulated power-on time and playback time on the screen and the LCD.
② Press the CX key on the remote control unit for service once.

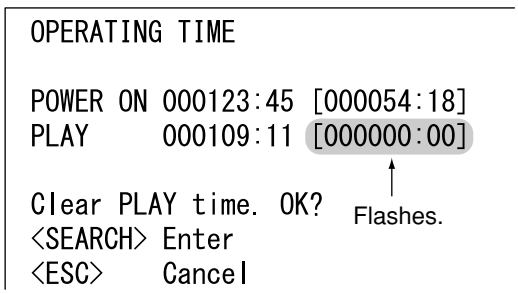


Or

Or, press the CX key on the remote control unit for service twice.

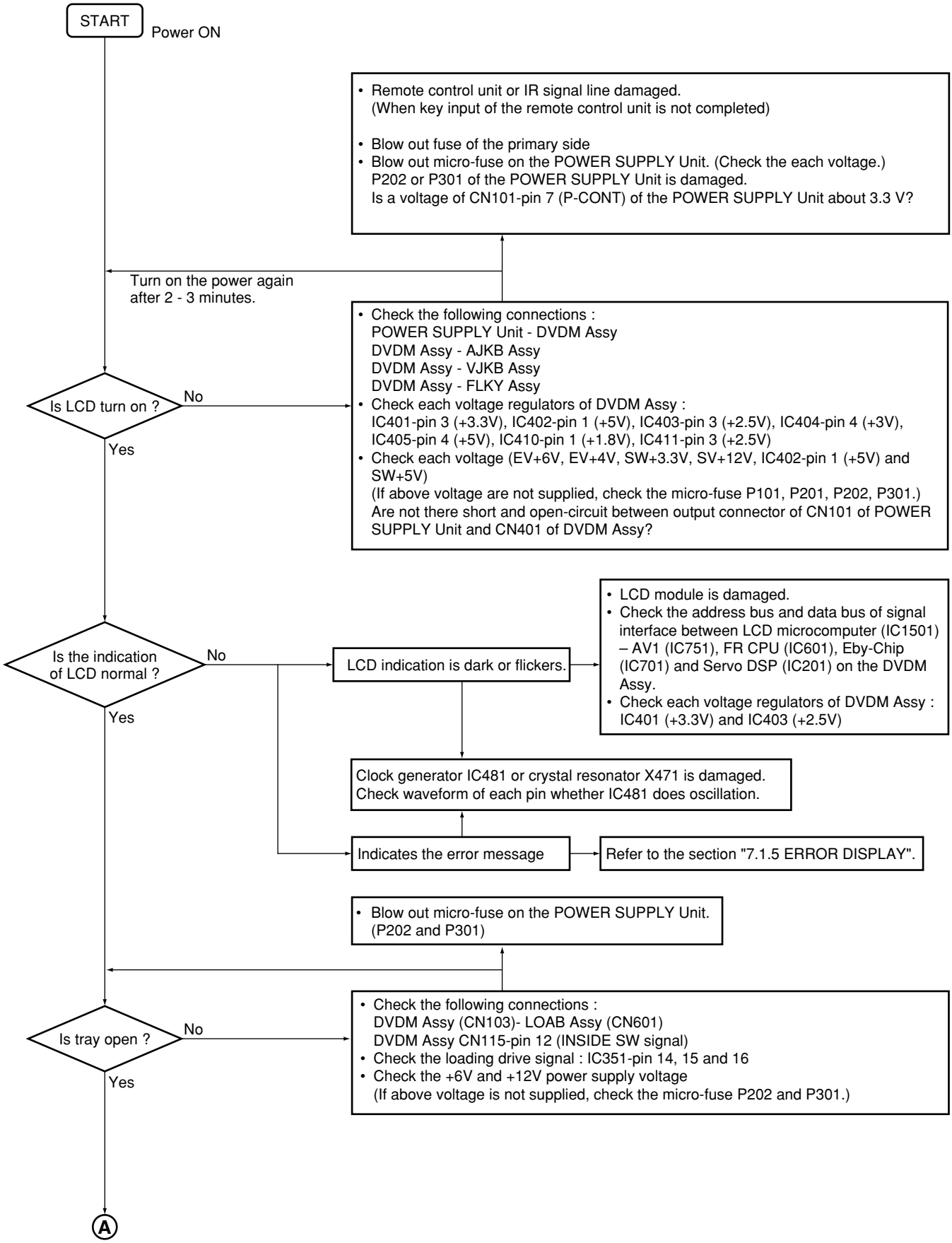


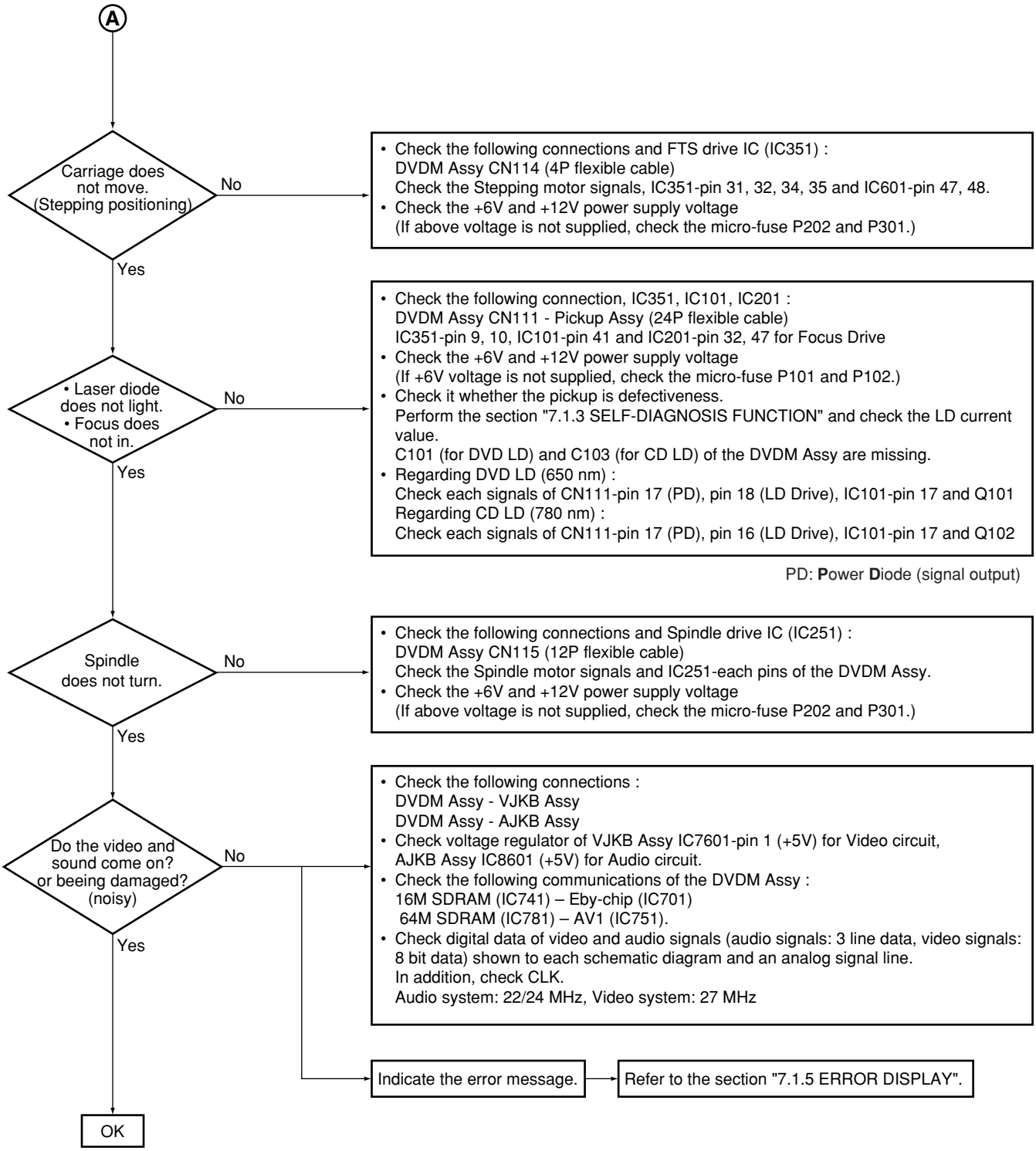
③ Press the CX key once or twice so that the meter count you wish to reset flashes. Then press the SEARCH key on the remote control unit for service. The display becomes that for reset confirmation. (In the following example, only the playback time is to be reset.)



To execute resetting, press the SEARCH key again.
To exit this mode without resetting, press the ESC key on the remote control unit for service.

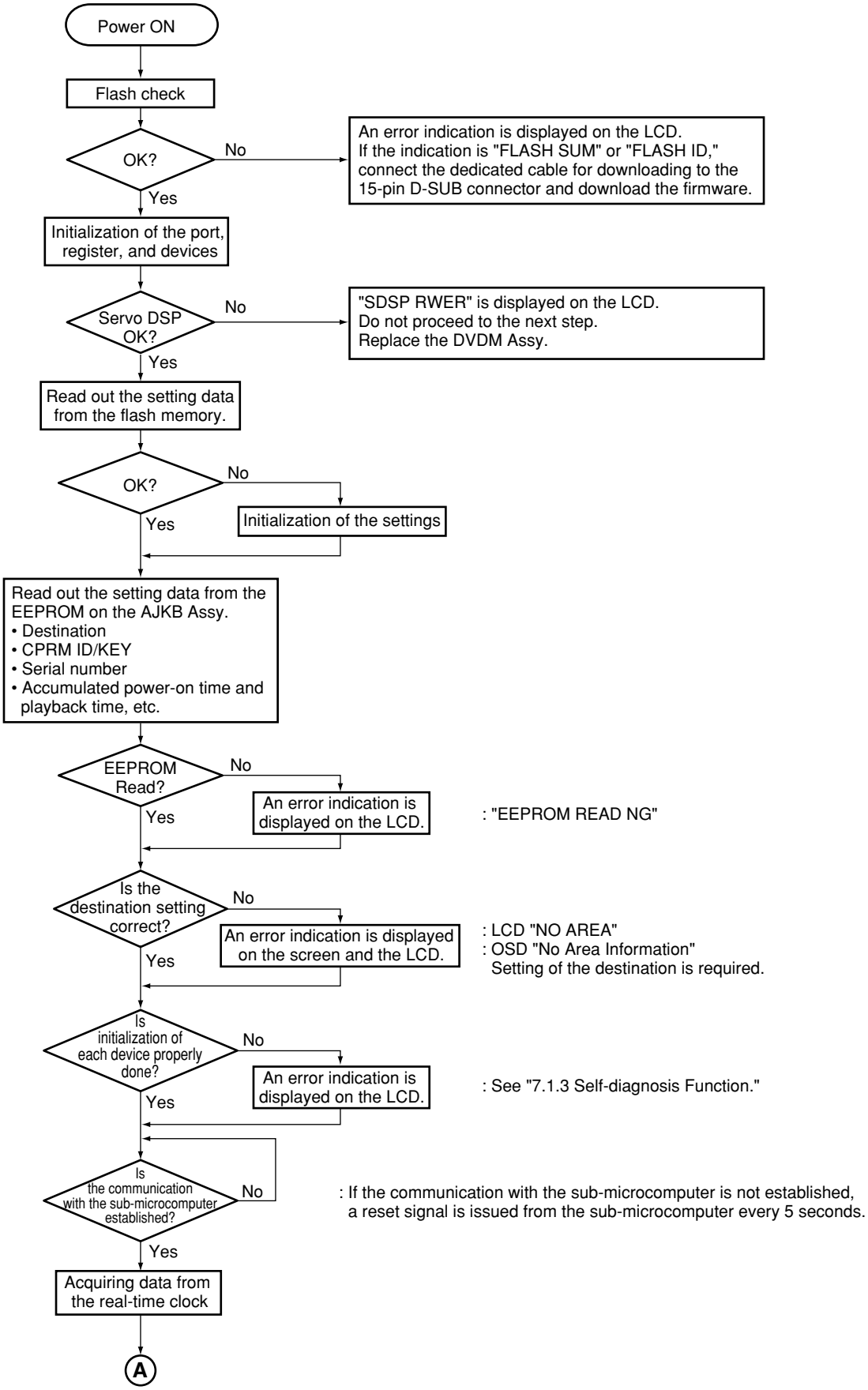
7.1.8 TROUBLE SHOOTING

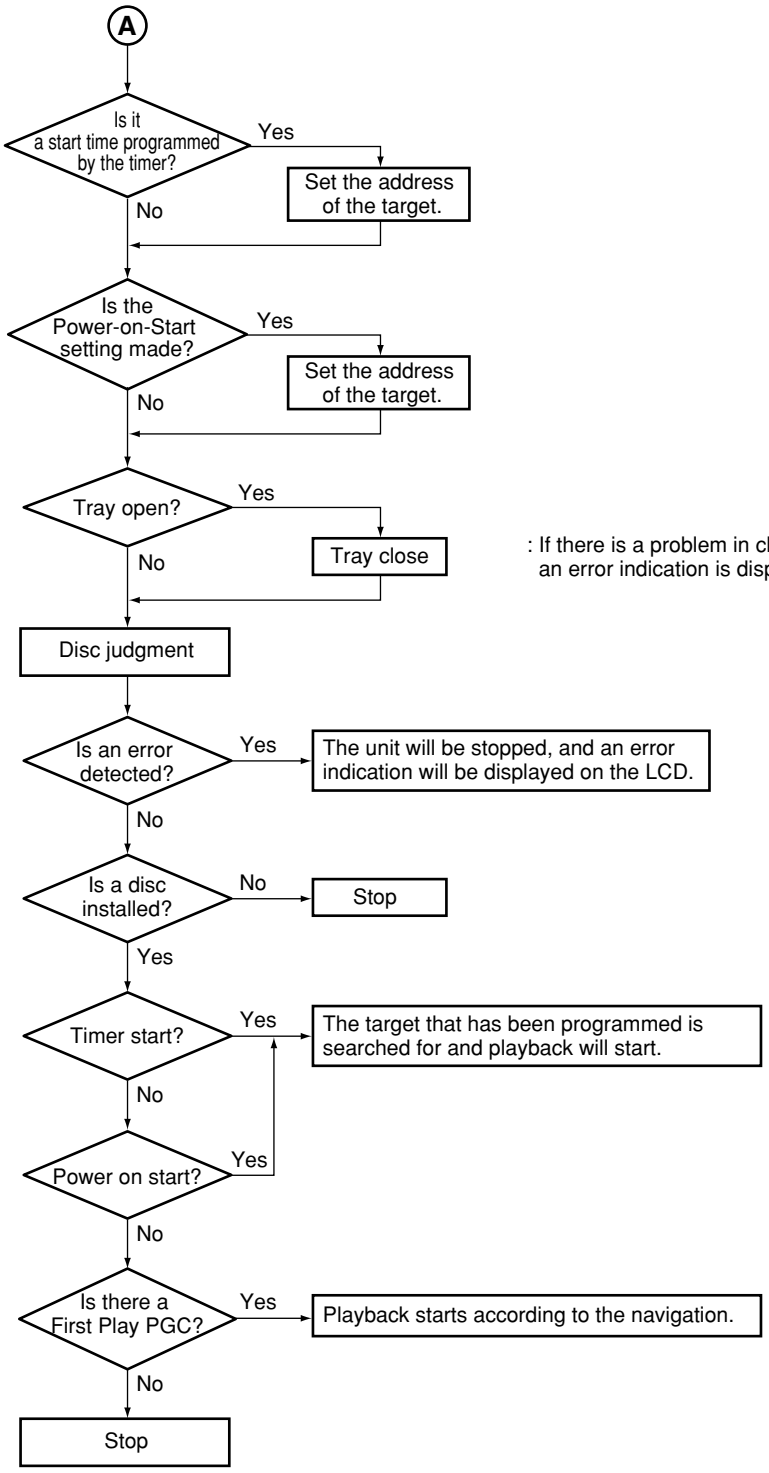



A
Carriage does not move. (Stepping positioning)
No
• Check the following connections and FTS drive IC (IC351) :
DVDM Assy CN114 (4P flexible cable)
Check the Stepping motor signals, IC351-pin 31, 32, 34, 35 and IC601-pin 47, 48.
• Check the +6V and +12V power supply voltage
(If above voltage is not supplied, check the micro-fuse P202 and P301.)
Yes
• Laser diode does not light.
• Focus does not in.
No
• Check the following connection, IC351, IC101, IC201 :
DVDM Assy CN111 - Pickup Assy (24P flexible cable)
IC351-pin 9, 10, IC101-pin 41 and IC201-pin 32, 47 for Focus Drive
• Check the +6V and +12V power supply voltage
(If +6V voltage is not supplied, check the micro-fuse P101 and P102.)
• Check it whether the pickup is defectiveness.
Perform the section "7.1.3 SELF-DIAGNOSIS FUNCTION" and check the LD current value.
C101 (for DVD LD) and C103 (for CD LD) of the DVDM Assy are missing.
• Regarding DVD LD (650 nm) :
Check each signals of CN111-pin 17 (PD), pin 18 (LD Drive), IC101-pin 17 and Q101
Regarding CD LD (780 nm) :
Check each signals of CN111-pin 17 (PD), pin 16 (LD Drive), IC101-pin 17 and Q102
Yes
PD: Power Diode (signal output)
Spindle does not turn.
No
• Check the following connections and Spindle drive IC (IC251) :
DVDM Assy CN115 (12P flexible cable)
Check the Spindle motor signals and IC251-each pins of the DVDM Assy.
• Check the +6V and +12V power supply voltage
(If above voltage is not supplied, check the micro-fuse P202 and P301.)
Yes
Do the video and sound come on? or beeing damaged? (noisy)
No
• Check the following connections :
DVDM Assy - VJKB Assy
DVDM Assy - AJKB Assy
• Check voltage regulator of VJKB Assy IC7601-pin 1 (+5V) for Video circuit,
AJKB Assy IC8601 (+5V) for Audio circuit.
• Check the following communications of the DVDM Assy :
16M SDRAM (IC741) – Eby-chip (IC701)
64M SDRAM (IC781) – AV1 (IC751).
• Check digital data of video and audio signals (audio signals: 3 line data, video signals: 8 bit data) shown to each schematic diagram and an analog signal line.
In addition, check CLK.
Audio system: 22/24 MHz, Video system: 27 MHz
Yes
Indicate the error message.
Refer to the section "7.1.5 ERROR DISPLAY".
OK

7.1.9 POWER ON SEQUENCE

Sequences after power is on



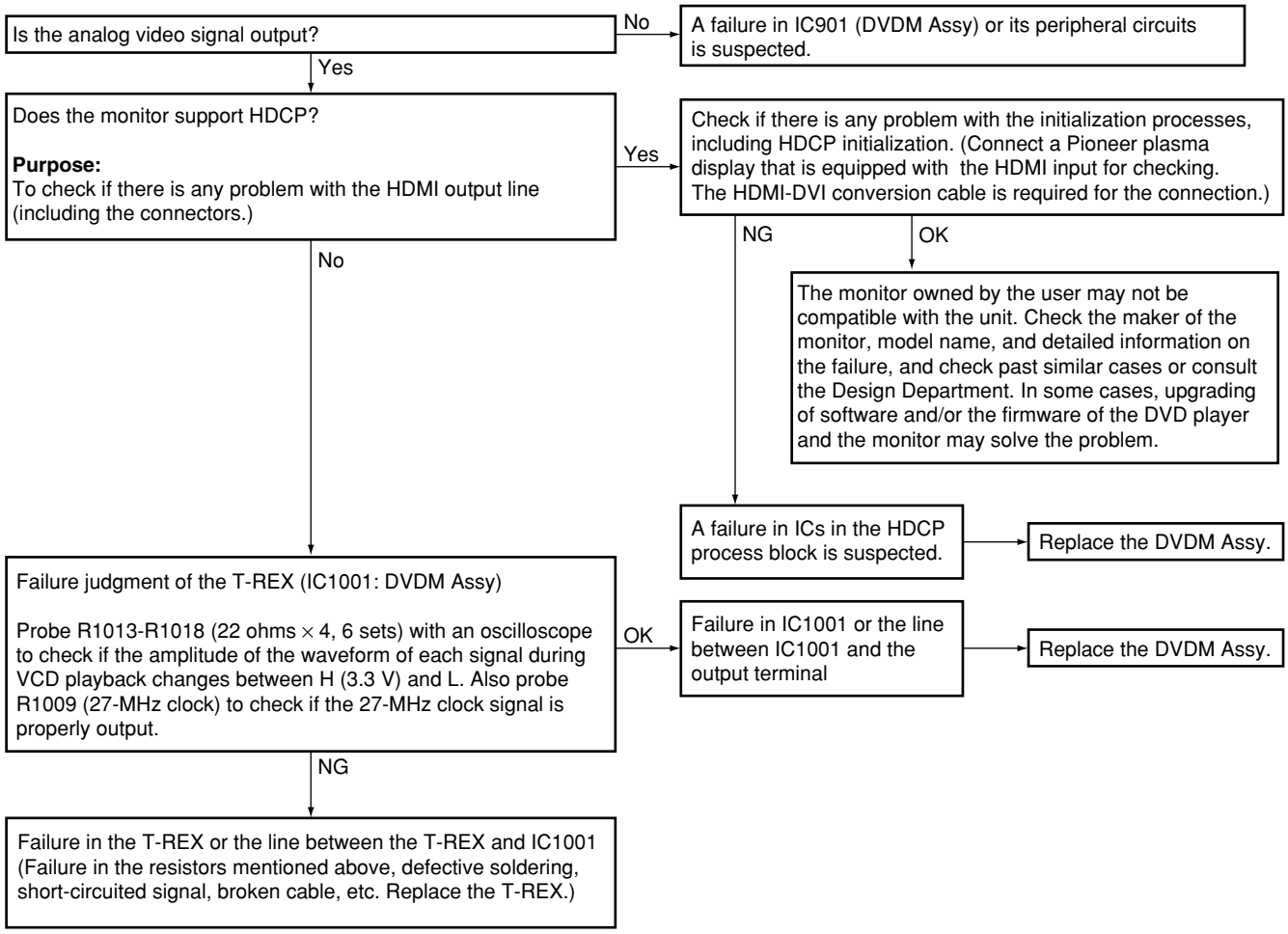


: If there is a problem in closing of the tray, an error indication is displayed on the LCD.

7.1.10 FAILURE JUDGMENT OF THE HDMI TRANSMITTER IC

• See "7.6 DISASSEMBLY" when replacing the DVDM Assy.

■ When the DVI video signal is not output



7.2 UPGRADING

7.2.1 UPGRADING OF THE FIRMWARE

Upgrading of the firmware is performed, using the CD-R for upgrading.

① Install the CD-R for upgrading in the tray and press the STOP/OPEN/CLOSE key on the main unit or the OPEN/CLOSE key on the remote control unit.

② After the disc is loaded and data on the disc are read, "DOWNLOAD" is displayed on the LCD. Then press the PLAY/PAUSE on the main unit or the PLAY key on the remote control unit. The disc is ejected, and downloading will start.

③ The indications on the LCD change from ERASE, WRITE, to DL OK. Then the unit will be automatically reset and will restart. Display the SETUP menu and check that the version of the firmware is upgraded.

If upgrading fails, for example, because a power failure occurred during downloading, downloading via the serial port, by connecting a PC is required.

7.2.2 IF UPGRADING OF THE FIRMWARE FAILS

■ SERIAL DOWNLOAD

[Purposes]

If upgrading of the firmware (using the CD-R) fails, upgrading via the serial port is required. This method of upgrading is explained here.

[Tools to be used]

- PC with a serial port
- Dedicated cable for downloading (GGD1204)
- Downloading program (UFU.exe)
- Firmware (*.sz0)

Operating environment for the UFU.exe file

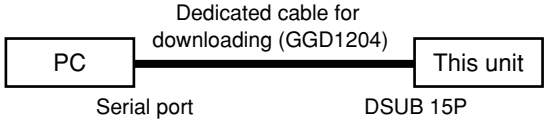
IBM-PC/AT compatible personal computer with Windows 9x/Me/2000/XP installed

CPU : Pursuant to the recommended operating environment for Windows

Memory : Pursuant to the recommended operating environment for Windows

[Connection]

Connect as follows:



RS-232C port

(1) Serial port built into the PC as standard equipment

(2) PCI serial port extension board
- CONTEC
  RS-232C communication board (COM-2, COM-4, COM-8)
- I/O data
  RS-232C extension serial board (RSA-PCI2, RSA-PCI2/P4)

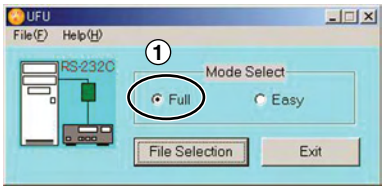
(3) Serial I/O PC card
- CONTEC
  RS-232C serial I/O PC card (COM-1, COM-2)
- Adtec System Science
  RS-232C serial adapter (AXP-SI01, AXP-SI21)

Note: The USB-RS-232C conversion adapter is not supported.

Note: Settings, such as SETUP, ADV.SETUP, and command stack, will be all initialized once this upgrading procedure is performed.

[Procedures]

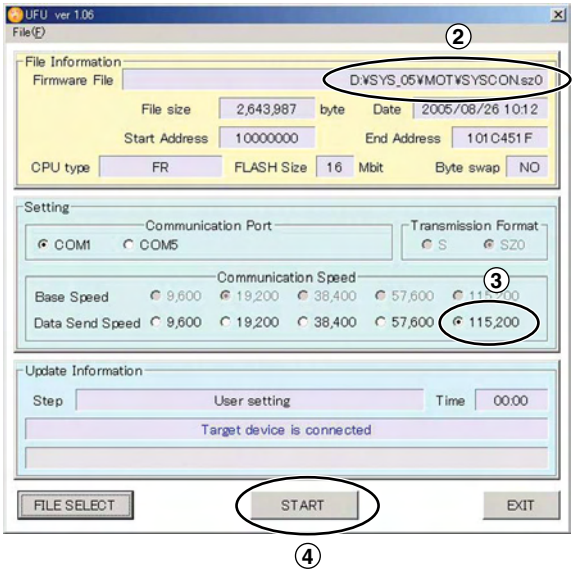
① Execute the UFU.exe file.
Select "Full" in Mode Select, then click on the File Select button.



② In File Select window, assign the *.sz0 file to be used for downloading. The following window will open:

③ Select the COM port to which the player is connected. Confirm that Data Transfer Rate is set to 115,200 (default).
If the setting is other than 115,200, set it to 115,200.

④ Click on the "START" button to start downloading.
- Downloading may fail, because of a communication error. In such a case, click on the Start button again.
- If downloading fails after the third attempt, a cause other than a communication error is suspected.
- It takes about 5 minutes to download the firmware.



⑤ The player will automatically restart after downloading is completed.

7.3 SETTING THE DESTINATION

In conventional models, as many number of sub-microcomputer units as that of destinations were designed, because a port set for each destination was provided with a sub-microcomputer unit. However, with this model, the sub-microcomputer unit is common to all destinations.

The data on the destination were written to the EEPROM on the AJKB Assy on the production line. When the AJKB Assy (or the EEPROM) is replaced for service, writing of data on the destination is also required.

Procedures for destination setting

If the AJKB Assy is replaced, as the data on destination is not available, "No Area Information!!!" flashes on the screen. Press the ESC then SPEED – keys to enter Destination Setting mode.

```
Input area number

1:Japan
2:USA
3:EU
4:Korea
```

Select a destination area with a numeric key. For example, if the 1 key is pressed, the display will be as shown below:

```
Area is Japan.  OK?

<SEARCH> Enter
<ESC>    Cancel
```

Press the ESC key to exit Destination Setting mode without setting a destination area.
Press the SEARCH key to determine the selected destination area, write the data to the EEPROM, and terminate Destination Setting mode.

When Destination Setting mode is terminated, ID Setting mode is automatically entered if the CPRM ID is not set yet.

Note: When the destination was set once, other destination cannot modify.

7.4 SETTING THE ID NUMBER AND COPYING THE ID DATA

The ID number is stored in the flash memory on the DVDM Assy and the EEPROM on the AJKB Assy. The ID data are stored in the EEPROM on the AJKB Assy. When these Assys are replaced, setting of the ID number and copying of the ID data may be required, as indicated below:

(1) When only the DVDM Assy is replaced:
Setting of the ID number and copying of the ID data are not required. Copying of the ID number is automatically performed from the EEPROM on the AJKB Assy to the flash memory on the DVDM Assy.

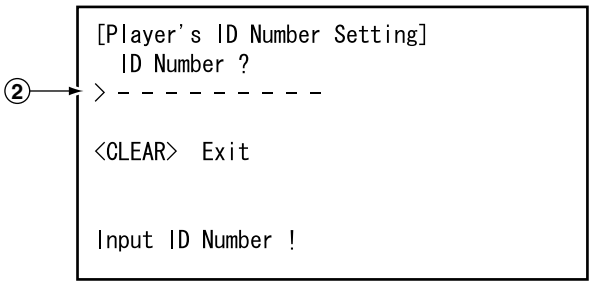
(2) When only the AJKB Assy is replaced:
Copying of the ID data is required. Copying of the ID number is automatically performed from the flash memory on the DVDM Assy to the EEPROM on the AJKB Assy.

(3) When both the DVDM and AJKB Assys are replaced:
Both setting of the ID number and copying of the ID data are required. (ID data disc to be used: GGV1174)

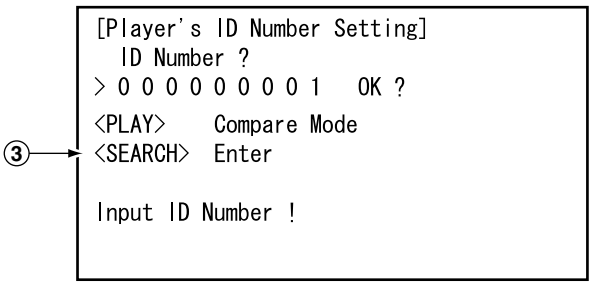
■ How to enter the ID number and copy the ID data

① Press the ESC then STEREO keys to enter Input mode.

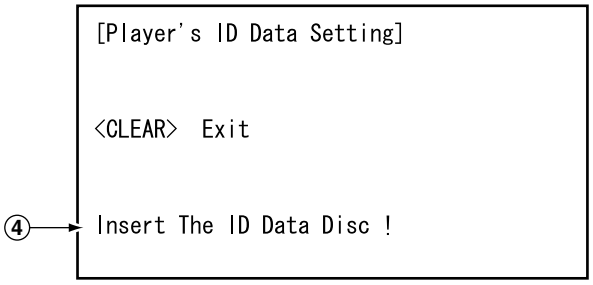
② Enter a 9-digit ID number (it is also displayed on the LCD). The ID number is indicated on the label attached on the rear panel.



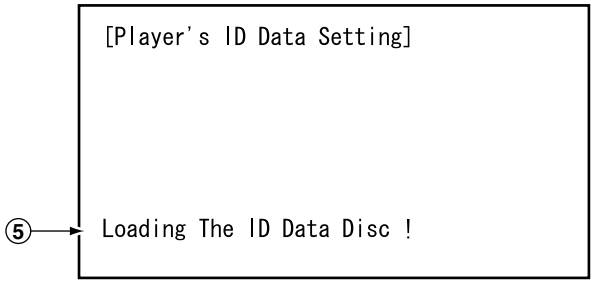
③ Press the SEARCH key to registrer the entered ID number.



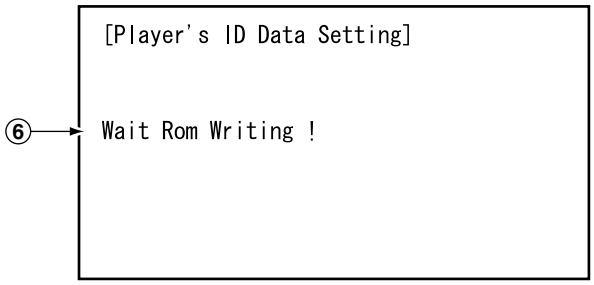
④ After the ID number is set, the unit is ready for ID data input. ("IN ID DATA" is displayed on the LCD.) Install the ID data disc in the disc tray and press the Close key on the main unit. Data will be read from the disc.



⑤ While data are being read, the indication shown below will be displayed. ("RD ID DATA" is displayed on the LCD.)

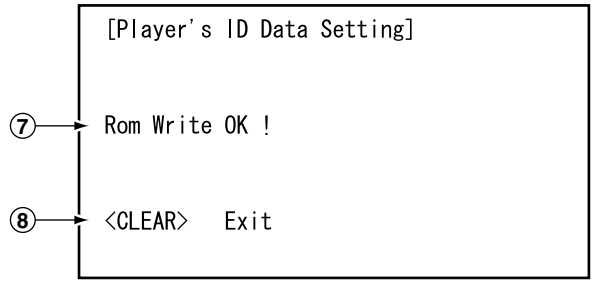


⑥ The data will be written in the EEPROM after reading of the ID data is finished. ("WR ID DATA" is displayed on the LCD.)



⑦ After writing of the data to the EEPROM is finished, "Rom Write OK!" will be displayed. ("ID DATA OK" is displayed on the LCD.)

⑧ After confirming the above indications, press the CLEAR key to terminate Setting mode.



7.5 SERIAL NUMBER SETTING

The serial number of this unit is stored in the EEPROM on the AJKB Assy. When the AJKB Assy is replaced, serial number setting is also required. The remote control unit for service is used for setting.

■ How to set

Press ESC then the 9 key to enter Serial Number Setting mode.

```
[Player's Serial Number Setting]
Serial Number
**********

<REP.A><REP.B>   Move Cursor
<SPEED-><SPEED+> Modify
<SEARCH> Set
<CLEAR>  Clear
<ESC>    Exit
```

Move the cursor to a digit where an alphanumeric is to be entered, using the REP.A or REP.B keys. Enter an alphanumeric, using the SPEED – or SPEED + keys.
After all necessary alphanumerics are entered, press the SEARCH key. The indications shown below will be displayed. If the setting is correct, press the SEARCH key again. The serial number will be written to the EEPROM.

```
[Player's Serial Number Setting]
Serial Number
FCMP000061JP


Write Serial Number
<SEARCH> OK
<CLEAR>  Clear
```

To exit Serial Number Setting mode without writing the set serial number to the EEPROM, press the CLEAR key.

Note:
As a serial number, from the first to the 4th and 11th to 12th digits from the left are reserved for uppercase alphabetics only, and from the 5th to 10th digits are reserved for numerics only.

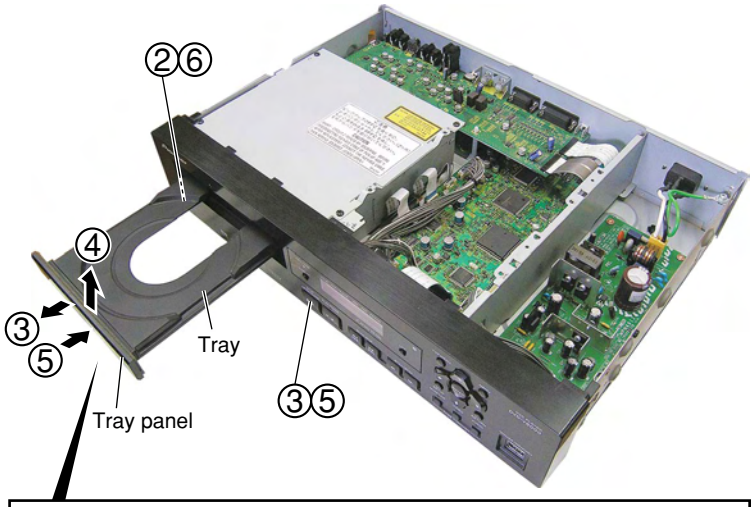
7.6 DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
Note 3: For performing the diagnosis shown below, the following jigs for service is required:
• Jig flexible cable 24P (GGD1111) + Extension board (GGF1575)

Diagnosis of the DVDM Assy

1 Bonnet and Tray Panel

① Remove the bonnet by removing the eleven screws.
② Press the ⏻ STANDBY ON button to turn on the power.
③ Press the ■ / ⏏ STOP OPEN/CLOSE button to open the tray.
④ Remove the tray panel.
⑤ Press the ■ / ⏏ STOP OPEN/CLOSE button to close the tray.
⑥ Press the ⏻ STANDBY ON button to turn off the power.

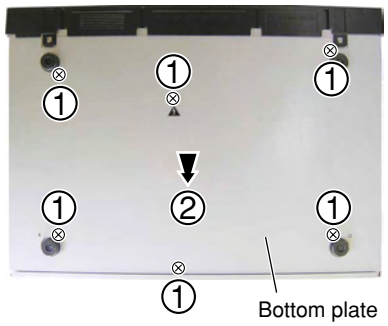


Note:
To remove the tray panel, disengage it from the hooks by slowly bending it toward you in order not to damage the hooks, then pull it up.

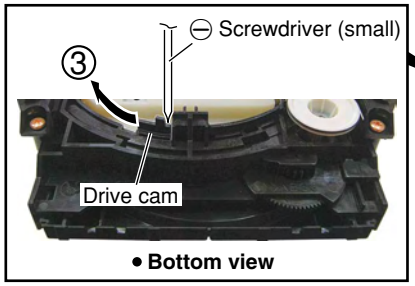
• **Bottom view**

• How to open the tray when the power cannot be on

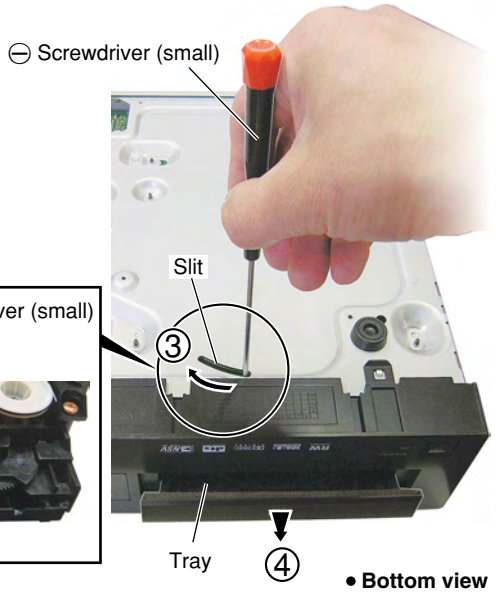
① Remove the six screws.
② Remove the bottom plate.
③ Insert a ⊖ screwdriver (small) into the slit, and slide the drive cam in the direction of the arrow.
④ Pull the tray by a hand.



• **Bottom view**



• **Bottom view**

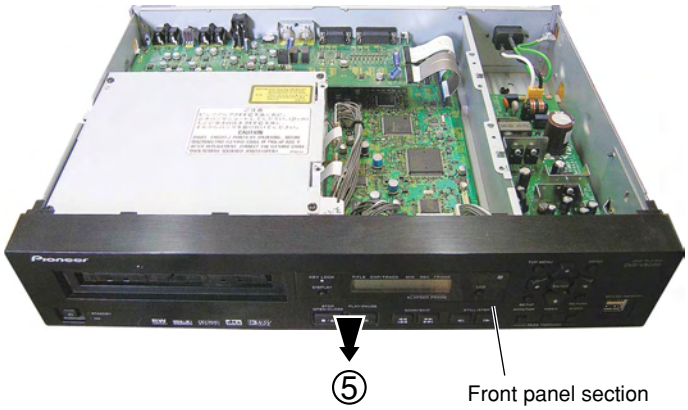


• **Bottom view**

2 Front Panel Section

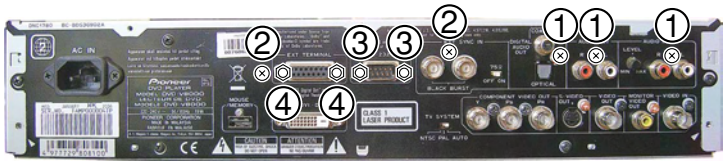
① Disconnect the one flexible cable.
② Disconnect the two connectors.
③ Remove the one screw.
④ Unhook the five hooks.

⑤ Remove the front panel section.



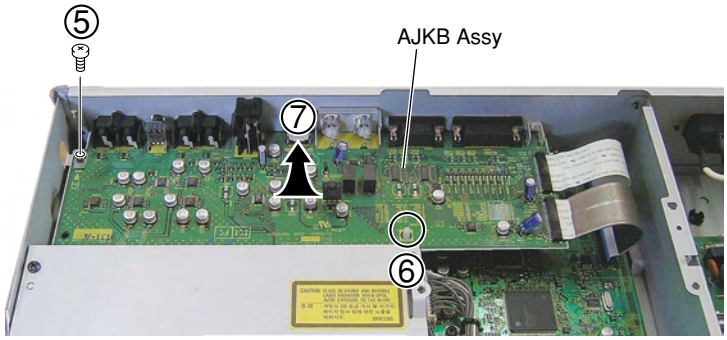
3 AJKB Assy

① Remove the three screws.
② Remove the two screws.
③ Remove the two hex. screws.
④ Remove the two hex. screws.



● Rear view

⑤ Remove the one screw.
⑥ Remove the PCB spacer.
⑦ Remove the AJKB Assy.

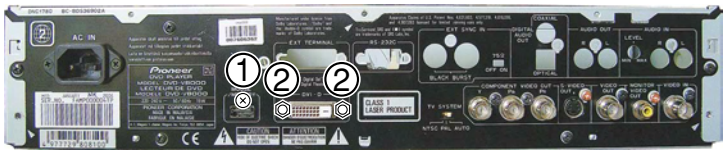


4 DVDM Assy

① Remove the one screw.

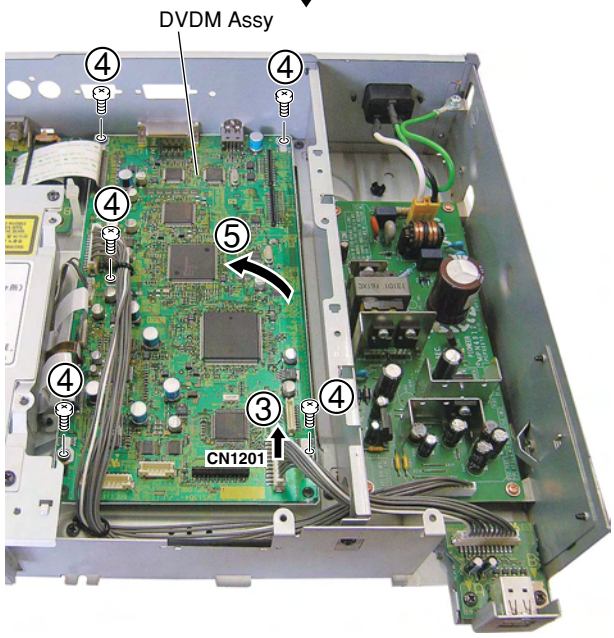
Note:
Be sure to use a Bit Size No. 1 Phillips screwdriver.

② Remove the two hex. screws.



● Rear view

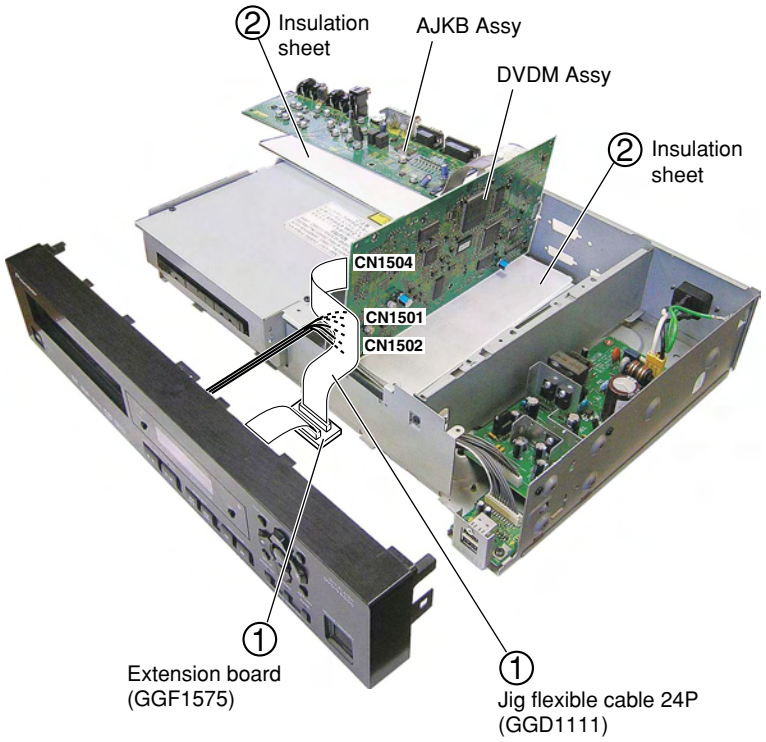
③ Disconnect the one connector.
④ Remove the five screws.
⑤ Remove the DVDM Assy.



5 Diagnosis

① Connect the jig flexible cable 24P and extension board.
② Insert the two insulation sheet.
③ Arrange the unit as shown in the photo.

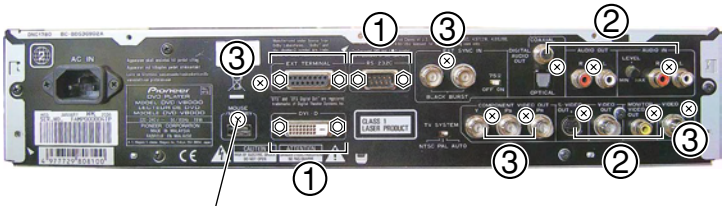
Diagnosis



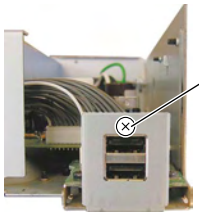
● Tips on the types of screws:

The indications for the types of screws, as shown below, are printed on the rear panel.
Refer to them when reassembling.

① Hex. screw (inch) :
② 3 × 8 P tight (copper) :
③ 3 × 6 B tight (black) :



Note:
Be sure to use a Bit Size No. 1 Phillips screwdriver.



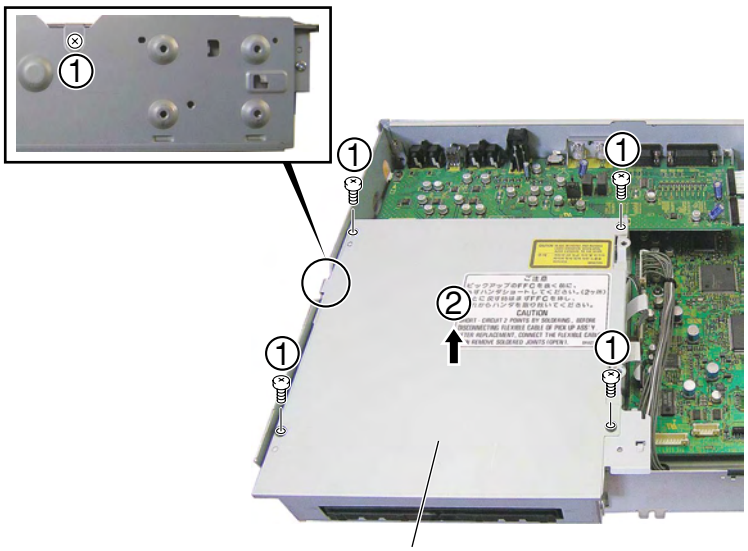
Note:
Be sure to use a Bit Size No. 1 Phillips screwdriver.

LOADER MECHA. Assy

1 LOADER MECHA. Assy

Note:
For clarity, the front panel section was removed for the photo, but the actual work can be done without removing it.

① Remove the five screws.
② Remove the mecha. case (top).

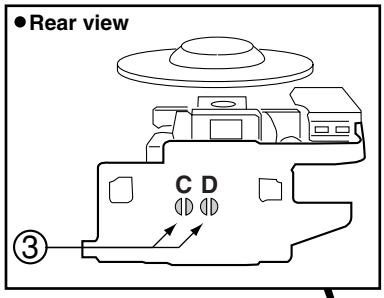


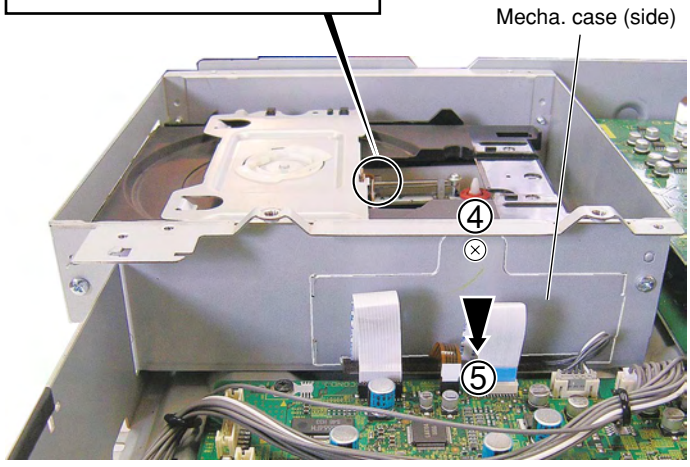
Mecha. case (top)

③ Short-circuit two points of C and D by soldering.

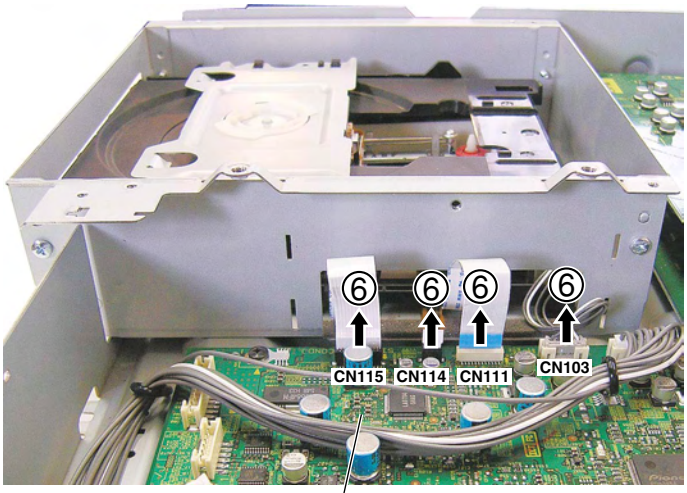
Note:
After replacement, connect the flexible cable, then remove the soldered joint (open).

④ Remove the one screw.
⑤ Remove the mecha. case (side).





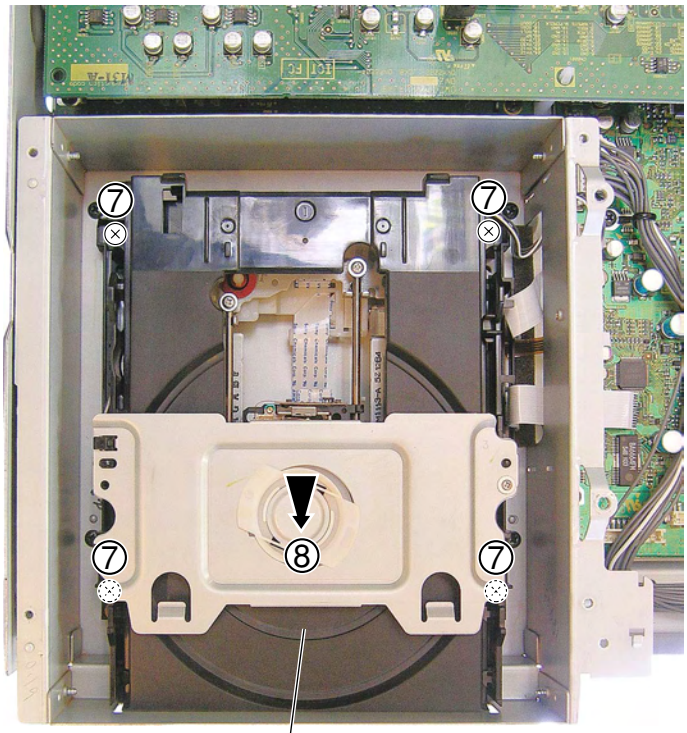
⑥ Disconnect the three flexible cables, and the one connector.



DVDM Assy

⑦ Remove the four screws.

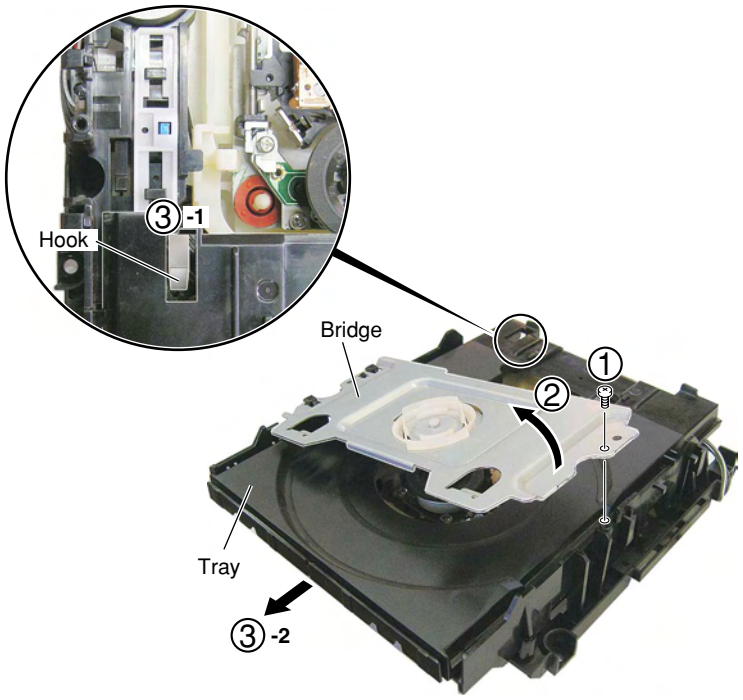
⑧ Remove the LOADER MECHA. Assy.



LOADER MECHA. Assy

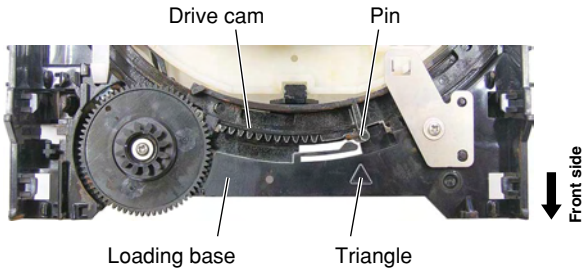
2 Bridge and Tray

① Remove the one screw.
② Remove the bridge.
③ Pull out the tray, then remove it by pressing the hook.



● Note when reinserting the tray

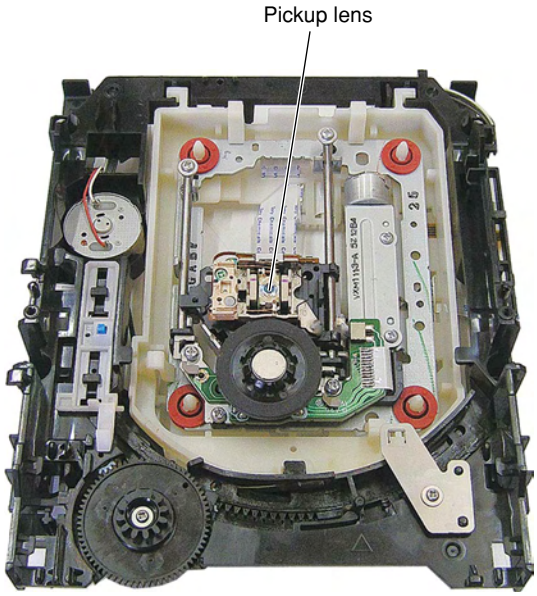
When reinserting the tray, first align the triangle printed on the loading base and the pin of the drive cam, then insert the tray.



● Cleanning

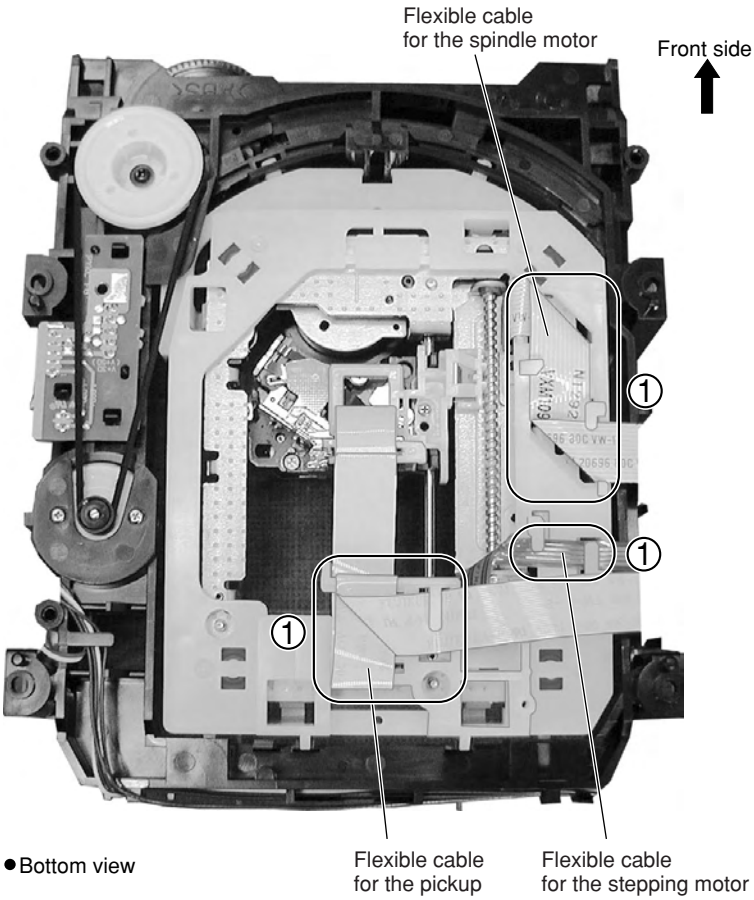
Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008

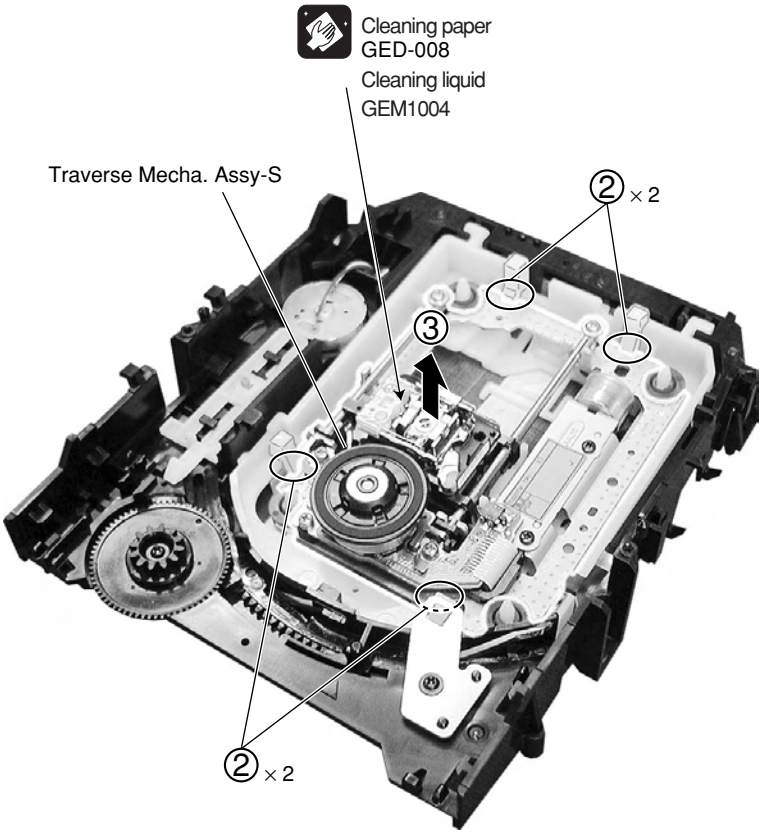


3 Traverse Mecha. Assy-S

① Dislodge the flexible cables from their factory placement.



● Bottom view



② Remove the four hooks.

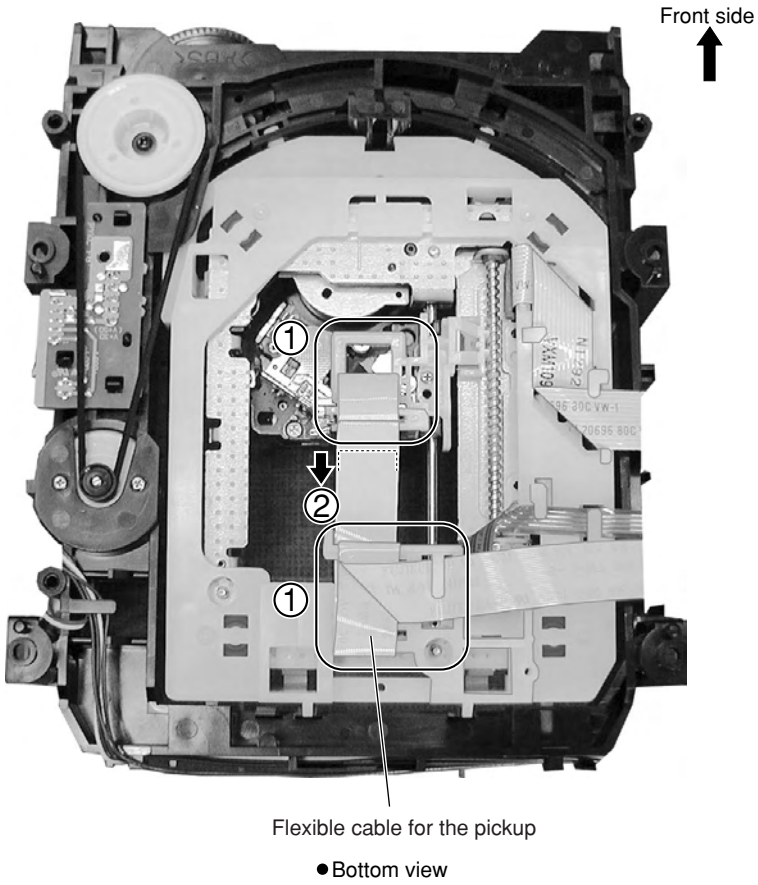
③ Remove the Traverse Mecha. Assy-S.

4 Pickup Assy-S

Note: The Pickup Assy-S can be removed without removing the Traverse Mecha. Assy-S. (shown as Step 3.)

① Dislodge the flexible cable for the pickup from its packaged placement.

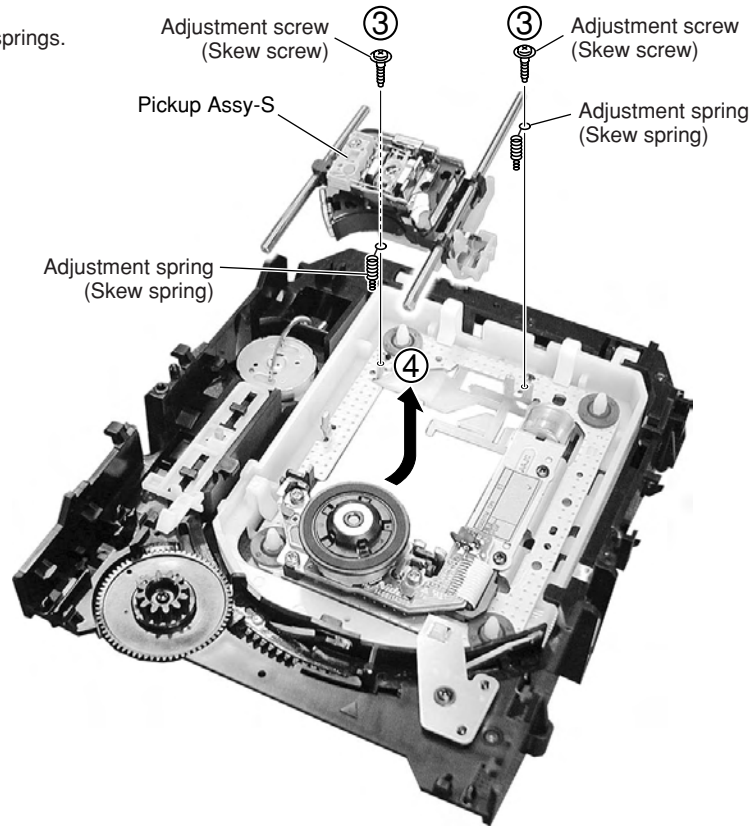
② Remove the flexible cable for the pickup.



● Bottom view

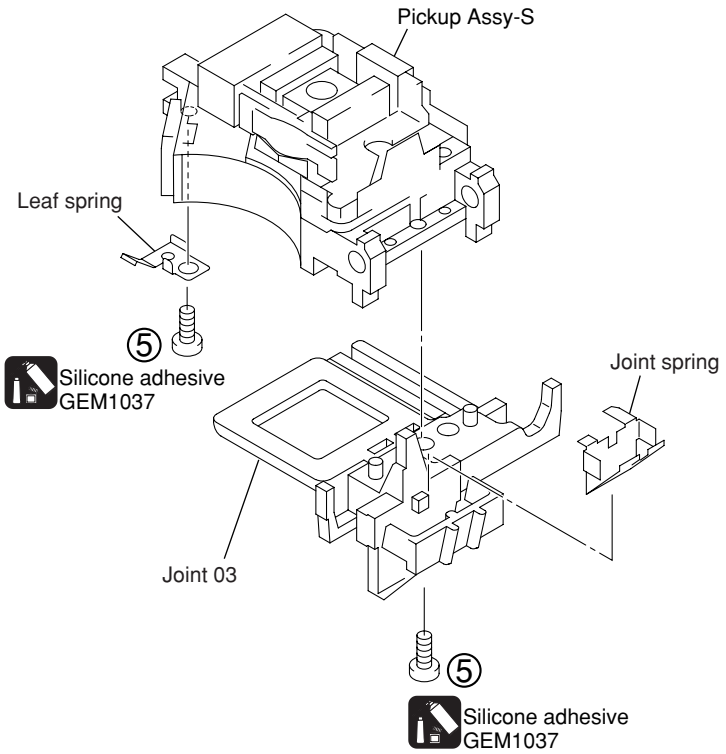
③ Remove the two adjustment screws and two adjustment springs.

④ Remove the Pickup Assy-S.



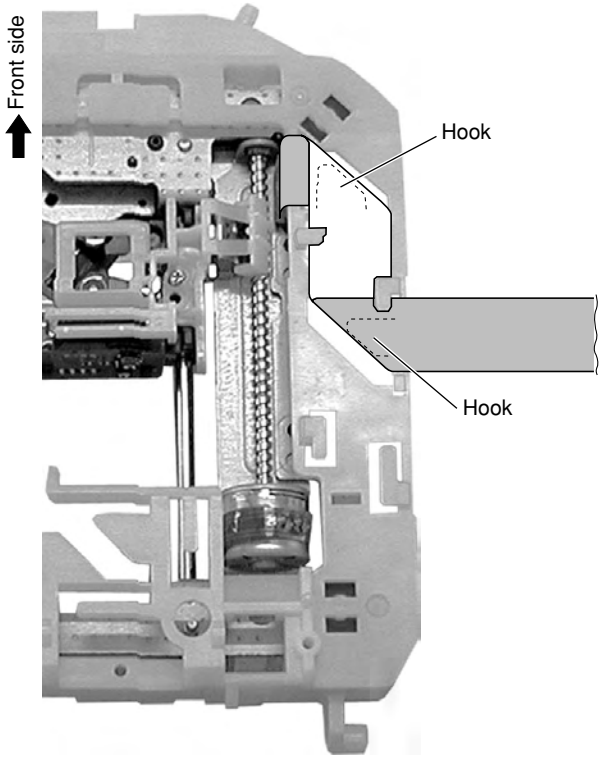
⑤ Remove the two screws.

Note: The screws are secured with the silicone adhesive. Make sure to apply the silicone adhesive after reattaching the screws.



Arrangement of the flexible cable for the spindle motor

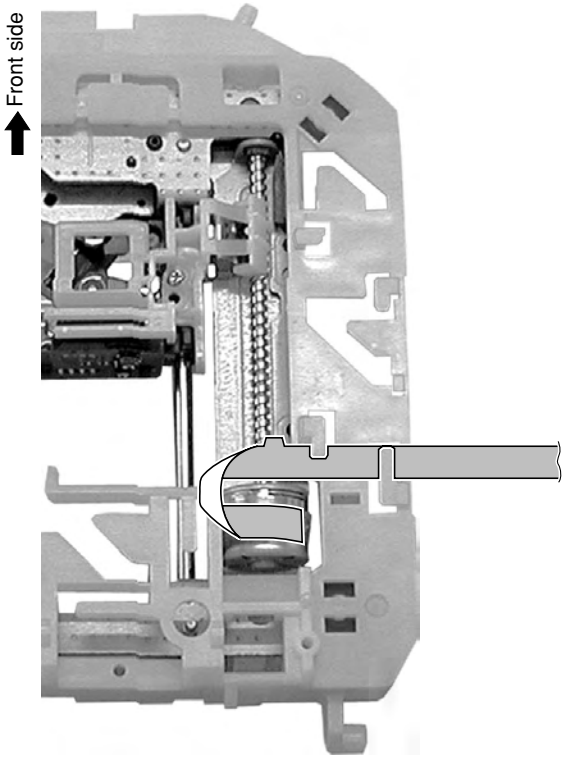
: Conductive surface



● Bottom view

Arrangement of the flexible cable for the stepping motor

: Conductive surface



● Bottom view

Arrangement of the flexible cable (use a 24P flexible cable: VDA2135) for the pickup

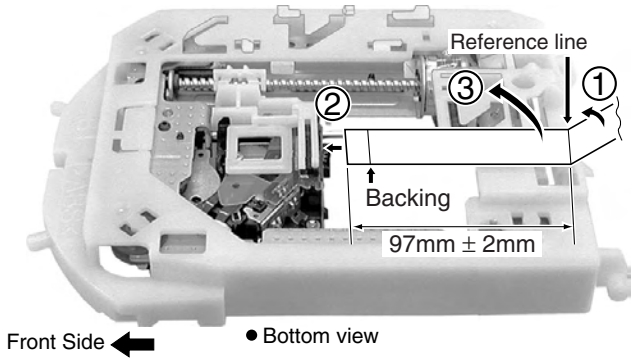
: Conductive surface

Note:
Be sure to move the Pickup Assy-S to the innermost perimeter.

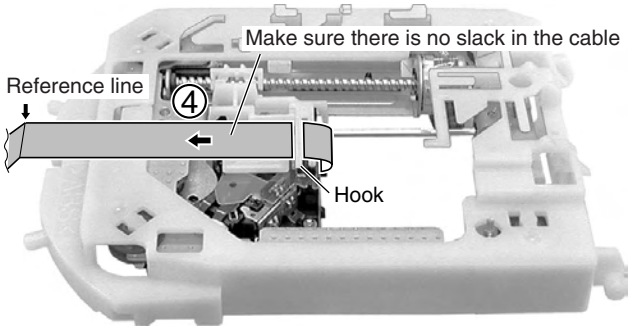
① Fold the flexible cable inward at the position of the reference line.

② Attach the flexible cable of the pickup to the connector.

③ Fold the flexible cable of the pickup with the backing inward.

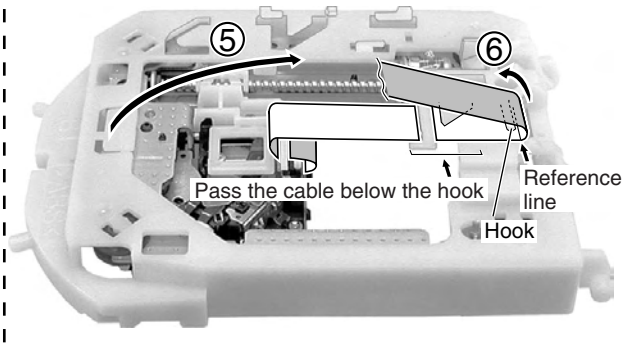


④ Pass the flexible cable through the hook not allowing any slack.

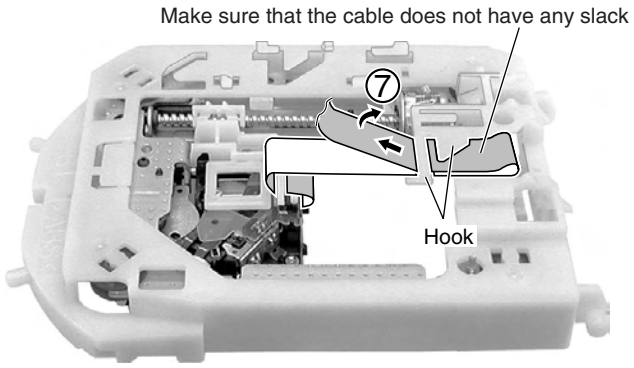


⑤ Fold the flexible cable as indicated in the photo.

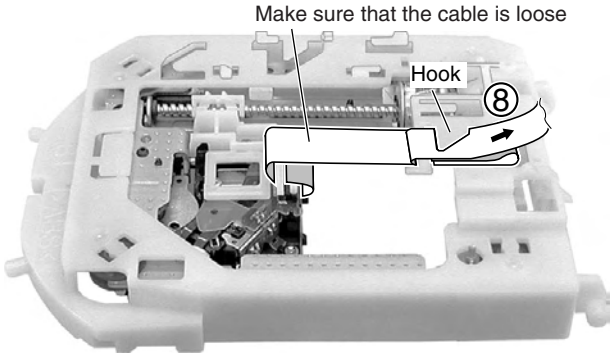
⑥ Hook the part folded in Step ① to the hook.



⑦ Pass the flexible cable below the hook, and fold it back.



⑧ Fold the flexible cable back at the hook.



7.7 PIN FUNCTION OF THE PCB ASSY

■ Internal Connection

(1) CN7001 (VKN1433): VJKB Assy → CN901 (VKN1433): DVDM Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GND	16	I	LETTER	0 V: OFF, 3.3 V: ON
2	I	Cr	V.ENCout Cr	17	I	SQEEZE	0 V: OFF, 3.3 V: ON
3	–	GND	GND	18	I	VSEL2	VIDEO OUT select
4	I	Cb	V.ENCout Cb	19	I	VSEL1	Monitor OUT select
5	–	GND	GND	20	I	OSD_DATA	Data signal for OSD
6	I	Y	V.ENCout Y	21	I	OSD_CLK	Clock signal for OSD
7	–	GND	GND	22	I	OSD_CS	Chip select signal for OSD
8	I	S_Y	V.ENCout S-Y	23	I	OSD_RST	Reset signal for OSD
9	–	GND	GND	24	O	SEL_TV	NTSC/PAL/AUTO select
10	I	S_C	V.ENCout S-C	25	O	Vin_ST	EXT Video sync signal
11	–	GND	GND	26	I	VSEL3	VIDEO OUT mute select
12	I	Cv	V.ENCout Composite	27	I	V+12	+12 V
13	–	GND	GND	28	I	V+6E	EVER+6 V
14	I	P/XI	0 V:INTER 3.3 V:PROGRE	29	I	V+6E	EVER+6 V
15	I	V_OFF	Video Driver mute signal				

• The status of video-switch port

No.	Pin Name	Low (0V)	Hi (+3.3V)
19	VSEL1	Video_out outputs DVD video signal	Video-out outputs Ext_In Video signal
18	VSEL2	Monitor-out outputs DVD video signal	Monitor-out outputs Ext_In Video signal
26	VSEL3	Video-out can be output (mute off)	Video-out is not output. (mute on)

(2) CN8001 (VKN1814): AJKB Assy → CN551 (VKN1510): DVDM Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	XAMUTE	0 V: ON, 3.3 V: OFF	13	I	MC	A-DAC mode control clock
2	I	ASEL	0 V: DVD, 3.3 V: EXT	14	–	GND	GNDD
3	I	LRCK	A-DAC LR latch	15	I	MD	A-DAC mode control data
4	–	GND	GNDD	16	–	GND	GNDD
5	I	DATA	A-DAC audio digital data	17	I	DOUT	D.Audio :0.5 Vp-p
6	–	GND	GNDD	18	I/O	SDA1	Data signal for EEPROM
7	I	BCK	A-DAC bit clock	19	I	SCL1	Clock signal for EEPROM
8	–	GND	GNDD	20	I	WP	EEPROM Write-Protection
9	I	PCMCLK	A-DAC system clock	21	I	V+3D	+3.3 V
10	–	GND	GNDD	22	I	V+3D	+3.3 V
11	I	ML	A-DAC mode cont latch	23	I	V+12	+12 V
12	–	GND	GNDD	24	I	V+12	+12 V

• The status of audio-switch port

No.	Pin Name	Low (0V)	Hi (+3.3V)
2	ASEL	Audio_out outputs DVD Audio signal	Audio-out outputs Ext_In Audio signal.
1	XAMUTE	Audio-out is not output. (mute on)	Audio-out can be output. (mute off)

(3) CN8701 (VKN1814): AJKB Assy → CN1503 (VKN1510): DVDM Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	V+3E	EVER+3.3 V	13	I	SEL_RS	H: D-SUB 15 pin, L: D-SUB 9 pin
2	I	RTC_CS	Chip select signal for RTC	14	O	POWER_IN	POWER ON: +5 V keep 0.1 sec
3	I	RTC_CLK	Clock signal for RTC	15	O	JAMMAD	JAMMA (L: 0 V, H: +3.3 V)
4	I/O	RTC_DATA	Data signal for RTC	16	O	JAMMAC	JAMMA (L: 0 V, H: +3.3 V)
5	I	STOP_ST	Stop flag singnal	17	O	JAMMAB	JAMMA (L: 0 V, H: +3.3 V)
6	–	GND	GNDD	18	O	JAMMAA	JAMMA (L: 0 V, H: +3.3 V)
7	O	SYNC_IN	Ext-sync (Black burst)	19	O	JAMMAY	JAMMA (L: 0 V, H: +3.3 V)
8	–	GND	GNDD	20	O	JAMMAX	JAMMA (L: 0 V, H: +3.3 V)
9	I	DTR	DTR (L: 0 V, H: +3.3 V)	21	O	JAMMAZ	JAMMA (L: 0 V, H: +3.3 V)
10	O	RXD	RXD (L: 0 V, H: +3.3 V)	22	O	JAMMAE	JAMMA (L: 0 V, H: +3.3 V)
11	O	CTS	CTS (L: 0 V, H: +3.3 V)	23	I	V+5D	+5 V
12	I	TXD	TXD (L: 0 V, H: +3.3 V)	24	I	V+5D	+5 V

(4) CN9701 (AKM1283): USBB Assy → CN1201 (AKM1283): DVDM Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GNDD	7	I	+5 V_U2	+5 V for USB port2
2	I	V+3D	+3.3 V	8	I	+5 V_U2	+5 V for USB port2
3	I/O	DM2	D- signal for USB port2	9	I	+5 V_U1	+5 V for USB port1
4	I/O	DP2	D+ signal for USB port2	10	I	+5 V_U1	+5 V for USB port1
5	I/O	DM1	D- signal for USB port1	11	–	GND	GNDD
6	I/O	DP1	D+ signal for USB port1	12	–	GND	GNDD

(5) CN9001 (VKN1284): KEYB Assy → CN1504 (VKN1510): DVDM Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	SEL_A_LED	Audio select Indication	13	–	GND	GNDD
2	O	KEY_IN1	Key matrix signal IN1	14	I	KEY_OUT3	Key matrix signal OUT3
3	I	SEL_V_LED	Video select Indication	15	–	GND	GNDD
4	O	KEY_IN2	Key matrix signal IN2	16	I	KEY_OUT4	Key matrix signal OUT4
5	I	SEL_M_LED	Monitor select Indication	17	–	GND	GNDD
6	O	KEY_IN3	Key matrix signal IN3	18	I	KEY_OUT5	Key matrix signal OUT5
7	O	IR	Remote control signal	19	I	PLAY_LED	Play Indication
8	O	KEY_IN4	Key matrix signal IN4	20	I	V+5E	EVER +5 V
9	I	V+3E	+3.3 V	21	I	KEYLOCK_LED	Keylock Indication
10	I	KEY_OUT1	Key matrix signal OUT1	22	I	POWER_LED	L(0 V): stand by LED,
11	–	GND	GNDD	23	I	V+5D	+5 V
12	I	KEY_OUT2	Key matrix signal OUT2	24	O	POWER_SW	Power SW signal

(6) CN9002 (CKS2977): KEYB Assy → CN9501 (CKS2977): PWSB Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GNDD	3	O	POWER_LED	L (0 V): Standby LED, H (3.3 V): Power ON LED
2	I	POWER_SW	Power SW signal	4	O	V+5E	EVER +5 V

(7) CN9501 (CKS2977): PWSB Assy → CN9002 (CKS2977): KEYB Assy

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GNDD	3	I	POWER_LED	L (0 V): Standby LED, H (3.3 V): Power ON LED
2	O	POWER_SW	Power SW signal	4	I	V+5E	EVER +5 V

■ External Connection

(1) JA7501 (DKN1267): VJKB Assy → Video output products

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	Ext In Video	Composite Video in: 1 Vp-p	2	–	GND	GNDA

(2) JA7502 (VKB1122): VJKB Assy → Composite Video Monitor

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	O	Monitor	Composite Video out: 1 Vp-p	2	–	GND	GNDA

(3) JA7503 (DKN1267): VJKB Assy → Composite Video Monitor

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	O	CVBS	Composite Video out:1 Vp-p	2	–	GND	GNDA

(4) CN7504 (AKP7179): VJKB Assy → S Video Monitor

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GNDA	4	O	S-C	S Video C out: 0.286 Vp-p, setup: 0.265 Vp-p
2	–	GND	GNDA	5	–	Shield GND	GNDA
3	O	S-Y	S Video Y out: 1 Vp-p				

(5) JA7505 (DKN1268): VJKB Assy → Conponent Video Monitor

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	O	Y	Component Video Y out: 1 Vp-p	4	–	GND	GNDA
2	O	Cb	Component Video Cb out: 0.7 Vp-p setup: 0.645 Vp-p	5	–	GND	GNDA
3	O	Cr	Component Video Cr out: 0.7 Vp-p setup: 0.645 Vp-p	6	–	GND	GNDA

(6) JA8503 (PKB1034): AJKB Assy → Audio output products

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	Ext In Audio Rch	Audio in Rch: 2 Vrms	3	I	Ext In Audio Lch	Audio in Lch:2 Vrms
2	–	GND	GNDA	4	–	GND	GNDA

(7) JA8504 (PKB1034): AJKB Assy → Audio input products

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	O	Audio out Rch	Audio out Rch: 2 Vrms	3	O	Audio out Lch	Audio in Lch: 2 Vrms
2	–	GND	GNDA	4	–	GND	GNDA

(8) JA8505 (VKX1013): AJKB Assy → Digital Audio input products

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
3	O	D-OUT Optical	Digital Audio output (Optical)	5	–	GND	GNDD
4	O	D-OUT Coaxial	Digital Audio output (Coaxial)				

(9) JA8701 (DKN1400): AJKB Assy → Black Burst signal generator

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	Ext_sync IN1	Ext-sync (Black burst)	3	I	Ext_sync IN2	Ext-sync (Black burst)
2	–	GND	GNDD	4	–	GND	GNDD

(10) CN8702 (DKN1435): AJKB Assy → Controller, Computer (RS-232C)

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	GND	GNDD	9	I	SW4	JAMMA KEY signal 4
2	O	TXD	TXD output (TIA/EIA-232E)	10	I	SW5	JAMMA KEY signal 5
3	I	RXD	RXD input (TIA/EIA-232E)	11	I	SW6	JAMMA KEY signal 6
4	O	DTR	DTR output (TIA/EIA-232E)	12	I	SW7	JAMMA KEY signal 7
5	I	POWER_IN	Short time +5 V: POWER ON	13	I	SW8	JAMMA KEY signal 8
6	I	SW1	JAMMA KEY signal 1	14	I	D.LOAD	CTS input (TIA/EIA-232E)
7	I	SW2	JAMMA KEY signal 2	15	O	STOP_ST	Stop flag signal
8	I	SW3	JAMMA KEY signal 3				

(11) CN8703 (AKP1213): AJKB Assy → Computer (RS-232C)

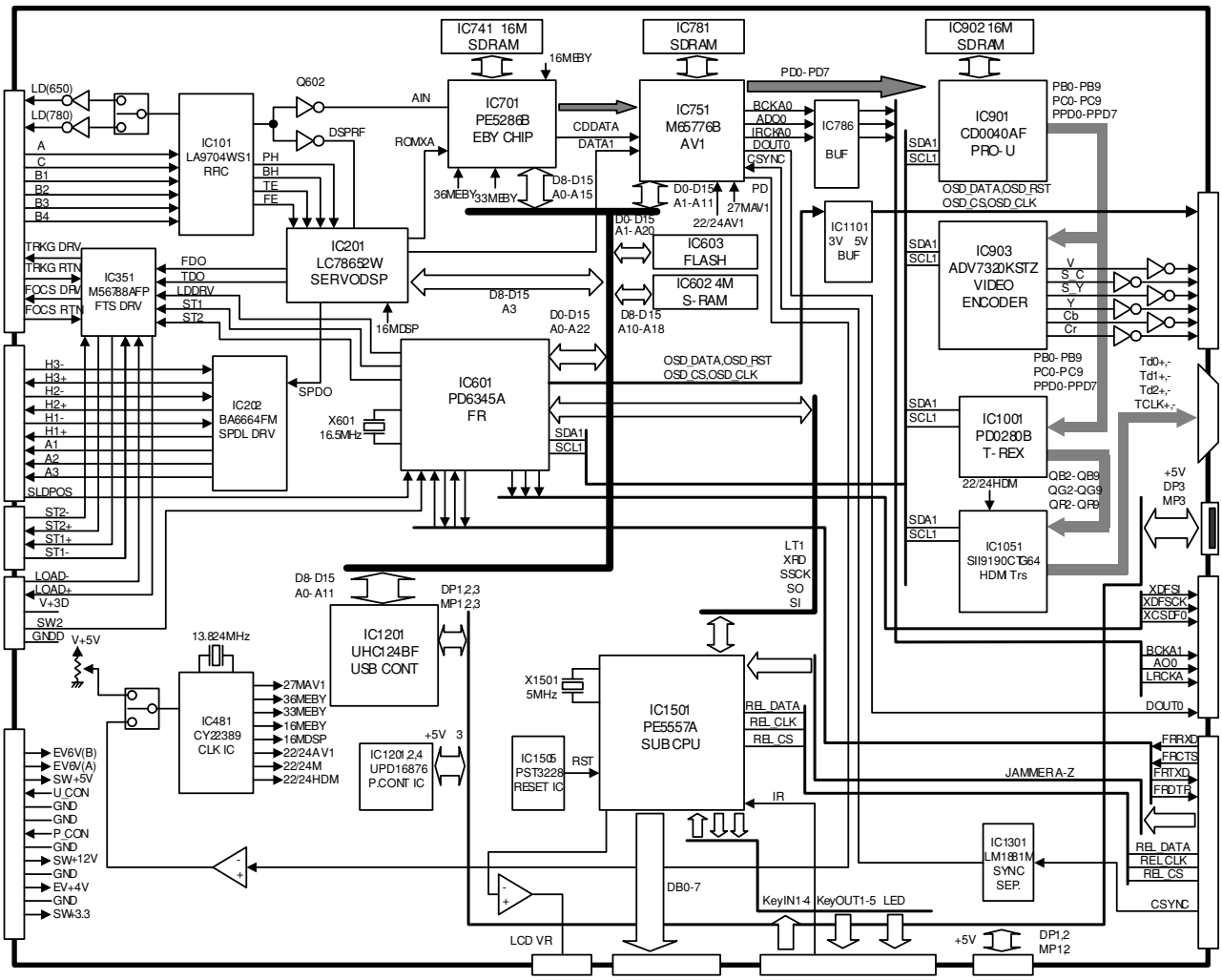
No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	–	NC	No use	6	–	NC	No use
2	I	RXD	RXD input (TIA/EIA-232E)	7	O	RTS	CTS Loop back output
3	O	TXD	TXD output (TIA/EIA-232E)	8	I	CTS	CTS input (TIA/EIA-232E)
4	O	DTR	DTR output (TIA/EIA-232E)	9	–	NC	No use
5	–	GND	GNDD				

(12) JA9702 (DKN1417): USBB Assy → USB Mouse / USB Memory

No.	I/O	Pin Name	Pin Function	No.	I/O	Pin Name	Pin Function
1	I	V_USB (U)	+5 V for USB port 1	5	I	V_USB (D)	+5 V for USB port 2
2	I/O	D- (U)	D- signal for USB port 1	6	I/O	D- (D)	D- signal for USB port 2
3	I/O	D+ (U)	D+ signal for USB port 1	7	I/O	D+ (D)	D+ signal for USB port 2
4	–	GND (U)	GNDD for USB port 1	8	–	GND (D)	GNDD for USB port 2

■ Internal Connection and Pin Function of the DVDM Assy (DWS1364)

• Block Diagram



Uses

- Servo system control
- System control
- MPEG data decode
- Analog video output and Digial audio output
- DVI output control
- USB signal control

■ Pin (Signal) Function of the DVDM Assy (DWS1364)

(1) CN401 (AKM1284) For power supply input

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	EV6V(B)	–	+6 V power supply	8	GND	–	Ground
2	EV6V(A)	–	+6 V power supply	9	SW+12V	–	+12 V power supply
3	SW+5V	–	USB port power supply	10	GND	–	Ground
4	U_CON	–	USB power control signal	11	EV+4V	–	+4 V power supply
5	GND	–	Ground	12	GND	–	Ground
6	GND	–	Ground	13	SW+3.3	–	+3.3 V power supply
7	P_CON	I	Power control signal				

(2) CN901(VKN1433) For VJKB Assy connection (video)

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	EV+6	–	+6 V power supply	16	P/XI	O	Progressive / Interlace switch
2	EV+6	–	+6 V power supply	17	GND	–	Ground
3	V+12	–	+12 V power supply	18	CV	O	Composite output signal
4	VSEL3	O	Mute select signal of video signal	19	GND	–	Ground
5	EXT_VIN	I	SYNC input of video signal	20	S_C	O	Video encoder output
6	SEL_TV	O	NTSC/PAL/AUTO switching signal	21	GND	–	Ground
7	OSD_RST	O	Reset signal for OSD	22	S_Y	O	Video encoder output
8	OSD_CS	O	OSD select signal	23	GND	–	Ground
9	OSD_CLK	O	Clock signal for OSD	24	Y	O	Video encoder output
10	OSD_DATA	O	OSD data	25	GND	O	Ground
11	VSEL1	O	Monitor output select signal	26	Cb	O	Video encoder output
12	VSEL2	O	Video output select signal	27	GND	–	Ground
13	SQUEEZE	O	C_DC switch	28	Cr	O	Video encoder output
14	LETTER	O	C_DC switch	29	GND	–	Ground
15	V_OFF	O	Video driver mute signal				

(3) CN103 (AKM1276) For LOAB Assy connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	LOAD-	O	Loading non-inverting output	4	SW2	I	Tray closing position input
2	LOAD+	O	Loading inverting output	5	SW1(GNDS)	–	Ground
3	V+3D	–	+3.3 V power supply				

(4) CN114 (VKN1409) For carriage motor

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	ST1-	–	Motor control 1 (-)	3	ST2+	–	Motor control 2 (+)
2	ST1+	–	Motor control 1 (+)	4	ST2-	–	Motor control 2 (-)

(5) CN111 (VKN2045) For pickup connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	GNDD	–	Ground	13	VRCOM	O	Monitoring voltage
2	VCC	–	+5 V power supply	14	VR780	O	Monitor diode VR for CD
3	B3	I	PU-B3 input	15	GNDD	–	Ground
4	B4	I	PU-B4 input	16	LD(780)	O	780 nm LD drive signal
5	780/650	I	LD switching control signal	17	PD	–	Monitoring voltage
6	C	I	Beam C input	18	LD(650)	O	650 nm LD drive signal
7	OEICG	O	Gain control signal	19	GNDD	–	Ground
8	A	I	Beam A input	20	VSHF	–	Ground connection
9	B1	I	PU-B1 input	21	TRKGDRV	O	Tracking inverting output
10	B2	I	PU-B2 input	22	TRKGRTN	O	Tracking non-inverting output
11	VREF(2.5V)	O	Reference power supply	23	FOCSDRV	O	Focus non-inverting output
12	VR650	O	Monitor diode VR for DVD	24	FOCSRTN	O	Focus inverting output

(6) CN115 (VKN1416) For spindle motor

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	A3	O	Monitor output	7	H2-	I	Holl sensor input (-)
2	A2	O	Monitor output	8	H3+	I	Holl sensor input (+)
3	A1	O	Monitor output	9	H3-	I	Holl sensor input (-)
4	H1+	I	Holl sensor input (+)	10	GNDM	–	Ground
5	H1-	I	Holl sensor input (-)	11	V+5S	–	+5 V power supply
6	H2+	I	Holl sensor input (+)	12	INSIDE	I	Slider position input

(7) CN1501 (AKM1277) For LCD module connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	VSS	–	Ground	4	RS	O	Code and data switching signal
2	VDD	–	+5 V power supply	5	R/XW	O	Read/write signal
3	VO	–	LCD display density adjustment	6	E	O	Enable signal

(8) CN1502 (AKM1281) For LCD module connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	DB0	I/O	LCD data bus	6	DB5	I/O	LCD data bus
2	DB1	I/O	LCD data bus	7	DB6	I/O	LCD data bus
3	DB2	I/O	LCD data bus	8	DB7	I/O	LCD data bus
4	DB3	I/O	LCD data bus	9	BLA	–	Backlight anode
5	DB4	I/O	LCD data bus	10	BLK	–	Backlight cathode

(9) CN1201 (AKM1283) For USBB Assy connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	GNDD	–	Ground	7	+5V_U2	–	CH2 +5 V supply line
2	V+3A	–	+3 V power supply	8	+5V_U2	–	CH2 +5 V supply line
3	DM2	I/O	CH2 communication signal	9	+5V_U1	–	CH1 +5 V supply line
4	DP2	I/O	CH2 communication signal	10	+5V_U1	–	CH1 +5 V supply line
5	DM1	I/O	CH1 communication signal	11	GNDD	–	Ground
6	DP1	I/O	CH1 communication signal	12	GNDD	–	Ground

(10) CN1202 (DKN1416) For rear side USB

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	V+5USB	–	CH3 +5 V supply line	3	DP3	I/O	CH3 communication signal
2	MP3	I/O	CH3 communication signal	4	GNDD	–	Ground

(11) CN1503 (VKN1510) For AJKB Assy connection (JAMMAER)

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	V+3E	–	Ever 3 V power supply	13	SEL_RS	O	RS-232C output connector select
2	RTC_CS	O	Select signal of real time clock	14	POWER_IN	I	Power ON signal input
3	RTC_CLK	O	Clock signal of real time clock	15	JAMMAD	I	JAMMAER signal input
4	RTC_DATA	I/O	Data signal of real time clock	16	JAMMAC	I	JAMMAER signal input
5	STOP_ST	O	Stop flag input	17	JAMMAB	I	JAMMAER signal input
6	GNDD	–	Ground	18	JAMMAA	I	JAMMAER signal input
7	SYNC_IN	I	External synch. input	19	JAMMAY	I	JAMMAER signal input
8	GNDD	–	Ground	20	JAMMAX	I	JAMMAER signal input
9	DTR	O	RS-232C signal	21	JAMMAZ	I	JAMMAER signal input
10	RXD	I	RS-232C signal	22	JAMMAE	I	JAMMAER signal input
11	CTS	I	RS-232C signal	23	V+5V	–	+5 V power supply
12	TXD	O	RS-232C signal	24	V+5V	–	+5 V power supply

(12) CN1504 (VKN1510) For KEYB Assy connection

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	PWR_KEY	I	Power ON key input	13	KEY_OUT2	O	Key matrix output 2
2	V+5V	–	+5 V power supply	14	GND	–	Ground
3	PWR_LED	O	Power ON LED lights output	15	KEY_OUT1	O	Key matrix output 1
4	KEYLOCK_LED	O	Key lock LED lights output	16	V+3E	–	Ever 3 V power supply
5	V+5E	–	Ever 5 V power supply	17	KEY_IN4	I	Key matrix input 4
6	PLAY_LED	O	Play LED lights output	18	IR	I	Remote control signal input
7	KEY_OUT5	O	Key matrix output 5	19	KEY_IN3	I	Key matrix input 3
8	GND	–	Ground	20	SEL_M_LED	O	Monitor select LED output
9	KEY_OUT4	O	Key matrix output 4	21	KEY_IN2	I	Key matrix input 2
10	GND	–	Ground	22	SEL_V_LED	O	Video select LED output
11	KEY_OUT3	O	Key matrix output 3	23	KEY_IN1	I	Key matrix input 1
12	GND	–	Ground	24	SEL_A_LED	O	Audio select LED output

(13) CN551 (VKN1510) For AJKB Assy connection (audio)

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	XAMUTE	O	Audio mute signal	13	MC	O	Audio DAC mode clock signal
2	ASEL	O	Audio select signal	14	GND	–	Ground
3	LRCK	O	L/R clock signal	15	MD	O	Audio DAC mode data signal
4	GND	–	Ground	16	GND	–	Ground
5	DATA	O	Audio data signal	17	DOUT	O	Digital audio output signal
6	GND	–	Ground	18	SDA1	I/O	I2C bus signal
7	BCK	O	Audio bit clock signal	19	SCL1	I/O	I2C bus clock
8	GND	–	Ground	20	WP	O	EEPROM write protect signal
9	PCMCLK	O	Audio system clock signal	21	V+3D	–	+3 V power supply
10	GND	–	Ground	22	V+3D	–	+3 V power supply
11	ML	O	Audio DAC mode latch signal	23	V+12	–	+12 V power supply
12	GND	–	Ground	24	V+12	–	+12 V power supply

(14) CN1001 (DKN1405) For DVI-D output

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	Td2-	O	TMDS data 2 -	16	HOT_PULG _DETECT	I	Live-line desorption signal
2	Td2+	O	TMDS data 2 +	17	Td0-	O	TMDS data 0-
3	Td2/4Shield	–	Ground	18	Td0+	O	TMDS data 0+
4	NC	–	Not used	19	Td0/5Shield	–	Ground
5	NC	–	Not used	20	NC	–	Not used
6	DDCCLK	I/O	Communication clock signal	21	NC	–	Not used
7	DDCDATA	I/O	Communication data signal	22	TCLKShield	–	Ground
8	NC	–	Not used	23	TCLK+	O	TMDS clock +
9	Td1-	O	TMDS data 1-	24	TCLK-	O	TMDS clock -
10	Td1+	O	TMDS data 1+	25	NC	–	Not used
11	Td1/3Shield	–	Ground	26	NC	–	Not used
12	NC	–	Not used	27	NC	–	Not used
13	NC	–	Not used	28	NC	–	Not used
14	+5V	–	+5 V power supply	29	NC	–	Not used
15	GND	–	Ground				

■ The selecting signal logic of the principal switch section

● Clock generator input frequency

	Sampling Input of Clock Generator	
44 x 48	H	44.1 KHz
	L	48 KHz

● Interlace/progressive

	Component Output	
P/XI	H	Progressive (AV-1 output)
	L	Interlace (IC801 output)

● RS-232C input

	D-sub connector Selection	
SEL_RS	H	Pin 15
	L	Pin 9

● LD drive output

	LD Drive Selection	
780/650	H	650 LD drive
	L	780 LD drive

● OEIC gain up

	OEIC Gain	
OEICG	H	6 dB up
	L	Normal

● C_DC output

SQUEEZE	LETTER	C_DC Output
L	L	V (0 V)_In 4 : 3 mode
L	H	M (2.2 V)_In letter box mode
H	L	H (5 V)_In squeeze mode
H	H	Inhibit

● LCD mode switch

	Control Mode Selection	
RS	H	Data input
	L	Instruction code input

● LCD read/write

	Read/write Switch	
R/XW	H	Read mode
	L	Write mode

● Monitor output switch

	Monitor Output	
VSEL1	H	External monitor
	L	

● Composite output switch

	Composite Output	
VSEL2	H	External mode
	L	

● Audio output switch

	Audio Output	
ASEL	H	External mode
	L	

● External sync. switch

	External Sync.	
SY_SEL	H	External mode
	L	

● Power supply control

	Power Supply Except Ever (except USB power supply)	
P_CON	H	ON
	L	OFF

● USB power supply control

	USB Power Supply	
U_CON	H	ON
	L	OFF

● Disc type switch

	Disc Type	
SEL_TV	0 V	PAL
	1.25 V	NTSC
	3 V	AUTO

7.8 PARTS
7.8.1 IC

¥ The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● **List of IC**

LA9704WS1, PD6345A, PE5286B, M65776BFP, PD0280B, CD0040AF, SII9190CTG64, UHC124BF, PE5557B, LC78652W

■ LA9704WS1 (DVDM ASSY: IC101)

• RF IC

● **Pin Function**

No.	Pin Name	I/O	Pin Functions
1	RFN	I	RF- input
2	VCC	–	Power supply (for DPD)
3	RFP	I	RF+ input
4	PD1	I	Pickup signal input
5	PD2	I	Pickup signal input
6	PD3	I	Pickup signal input
7	PD4	I	Pickup signal input
8	GND	–	Ground (for DPD)
9	PIN1	I	Pickup signal input
10	PIN2	I	Pickup signal input
11	TIN1	I	Pickup signal input
12	TIN2	I	Pickup signal input
13	FIN1	I	Pickup signal input
14	FIN2	I	Pickup signal input
15	LDD1	O	APC 1 output
16	LDS1	I	APC 1 monitor input
17	LDD2	O	APC 2 output
18	LDS2	I	APC 2 monitor input
19	GND	–	Ground (Servo system)
20	LDTH	I	APC 1 threshold switch
21	LDON	I	Laser ON terminal
22	LDSEL	I	APC change terminal
23	AGOF	I	RF AGC off terminal
24	BCA	I	PH electric discharge coefficient change
25	GU	I	RF servo signal gain up
26	DVD/CD	I	RF- equalizer bandwidth switch
27	DPD/TE	I	TE output switch
28	PP/TE	I	TS output switch
29	VCC	–	Power supply (Servo system)
30	EQSCT	I	EQ switch for CD
31	WO/BH	I	BHMIX switch
32	RFSEL	I	RF amplifier gain switch
33	LDDM	I	LDD monitor
34	TH	I	Tracking hold
35	XHTR	I	Tracking, Bottom bandwidth switch
36	SGC	I	Servo gain control
37	FEBL	I	FE balance adjustment
38	TEBL	I	TE balance adjustment
39	CP	I	Connection terminal of a resistor and a capacitor for charge pump gain setting
40	THC	I	Capacitor connection terminal for tracking hold
41	FE	O	Focus error output
42	TE	O	Tracking error output
43	PPN	I	Resistor connection terminal for push-pull gain setting
44	PP	O	Push-pull output
45	TS	O	Tracking cross signal output

No.	Pin Name	I/O	Pin Functions
46	TESI	I	TES comparator input
47	TES	O	TES output
48	DEF	O	Deffect detection
49	BHMIX	O	PH, BH, wobble switching output
50	BHACI	I	BH–AC input
51	BH	O	RF bottom detection output
52	PH	O	RF peak detection output
53	WOC	I	Capacitor connection terminal for DC cut
54	ISET	I	Resistor connection terminal for BPF center frequency setting
55	BCAI	I	Rersistor connection terminal for peak hold detection fixed number setting
56	PHC	I	PH detection capacitor connection terminal for RF-AGC
57	LPC	I	Capacitor connection terminal for RF DC servo
58	DEFC	I	Capacitor connection terminal for deffect detection
59	GND	–	Ground (for RF)
60	RFO	O	RF output
61	REF	O	Reference output
62	EQC1	I	Equalizer setting terminal for CD
63	VCC	–	Power supply (RF system)
64	EQC2	I	Equalizer setting terminal for CD

PD6345A (DVDM ASSY: IC601)

• FR

● Pin Function

No.	Pin Name	I/O	Pin Functions
1	D16	I/O	Data bus
2	D17	I/O	Data bus
3	D18	I/O	Data bus
4	D19	I/O	Data bus
5	D20	I/O	Data bus
6	D21	I/O	Data bus
7	D22	I/O	Data bus
8	D23	I/O	Data bus
9	D24	I/O	Data bus
10	D25	I/O	Data bus
11	D26	I/O	Data bus
12	D27	I/O	Data bus
13	D28	I/O	Data bus
14	D29	I/O	Data bus
15	D30	I/O	Data bus
16	D31	I/O	Data bus
17	GND	–	Ground
18	A00	O	Address bus
19	A01	O	Address bus
20	A02	O	Address bus
21	A03	O	Address bus
22	A04	O	Address bus
23	A05	O	Address bus
24	A06	O	Address bus
25	A07	O	Address bus
26	V3R3	–	Power supply (+ 3.3 V)
27	V2R2	–	Power supply (+ 2.5 V)
28	A08	O	Address bus
29	A09	O	Address bus
30	A10	O	Address bus
31	A11	O	Address bus
32	A12	O	Address bus
33	A13	O	Address bus
34	A14	O	Address bus
35	A15	O	Address bus
36	GND	–	Ground
37	A16	O	Address bus
38	A17	O	Address bus
39	A18	O	Address bus
40	A19	O	Address bus
41	A20	O	Address bus
42	A21	O	Address bus
43	A22	O	Address bus
44	WBL	O	For Wobble detection corresponding to DVD R/W (main)
45	GND	–	Ground
46	V3R3	–	Power supply (+ 3.3 V)
47	STEP1	D/A	For stepping motor control
48	STEP2	D/A	For stepping motor control

No.	Pin Name	I/O	Pin Functions
49	LODRV	D/A	Loading, motor drive
50	SEL_TV	A/D	NTSC/PAL/AUTO switching signal
51	AN1	A/D	Not used
52	AN2	A/D	Not used
53	XOEM	A/D	OEM model protection input
54	LDREAD	A/D	Input for LD current value indication
55	AN5	A/D	Not used
56	AN6	A/D	Not used
57	LODPOS	A/D	Loading clamp position SW input
58	AVCC	–	Power supply (+ 3.3 V)
59	AVRH	–	Power supply (+ 3.3 V)
60	AGND	–	Analog ground
61	GND	–	Ground
62	SLDPOS	I	SW input of slider inside position
63	GSW	O	Gain up at ACBR (at ACBR: H, others: L)
64	EXT_VIN	I	VSYNC input of the external input video
65	GU	O	RF servo signal gain up output
66	XMON	O	Mute of DRV (spindle motor ON: H)
67	XDRVMUT	O	FTS driver mute output
68	LT1_3V	O	Communication response to the sub CPU
69	XRDY_3V	I	Communication request from the sub CPU
70	V3R3	–	Power supply (+ 3.3 V)
71	V2R5	–	Power supply (+ 2.5 V)
72	DSPCUR	I	Actuator over-current detection input
73	XCBUSY	I	Busy signal of command process
74	XDSPRST	I	Servo DSP reset
75	BCA	O	BCA read signal (at BCA read: H)
76	HDMIINT	I	Interrupt input of HDMI CONT
77	PPCNT	O	Switch of TZC in WBL traversal (at PP: H)
78	XDFINH	I/O	Defect signal control
79	DPD/TE	O	H=1 beam, L=3 beams
80	GND	–	Ground
81	DVD/XCD	O	RF EQ switching signal at DVD/CD
82	AGOFF	O	H": Turn off AGC of RFI
83	650X780	O	780 nm/650 nm switching signal
84	LD_ON	O	ON/OFF control signal of laser diode
85	WP	O	EEPROM write protect
86	RFSEL	O	RF amplifier gain switching output
87	XCD2X	O	For VCD double speed playback
88	OEICG	O	H": Gain of OEIC up to 6 dB
89	SEL_ADO	O	AUDIO output switch
90	U_CON	O	USB Power supply control signal
91	V_SEL1	O	MONITOR output switch
92	V_SEL2	O	VIDEO output switch
93	SDA1	I/O	I2C control lines
94	SDA0	–	Not used
95	SCL1	I/O	I2C control lines
96	SCL0	–	Not used
97	CTS_3V	I	RS-232C clear to send input
98	DTR	O	RS-232C data terminal ready output

No.	Pin Name	I/O	Pin Functions
99	LOAD_ON	O	FLASH MEMORY write protect release
100	GND	–	Ground
101	XPROURST	O	VIDEO reset signal
102	VOFF	O	VIDEO amplifier mute signal
103	HDMIRST	O	Reset signal of HDMI CONT
104	SY_SEL	O	External sync. switch
105	44X48	O	DAC and DASP supply clock fs 44/48 selection
106	CSYNC_FR	I	External sync. input detect
107	SEL_RS	O	RS232C port switching signal
108	P/XI	O	Progressive/Interrace switching signal
109	V3R3	–	Power supply (+ 3.3 V)
110	V2R5	–	Power supply (+ 2.5 V)
111	XINT0	I	AV1 interrupt input
112	XINT1	I	AV1 interrupt input
113	XIRQ10	I	EBY Chip interrupt #0
114	XIRQ11	I	EBY Chip interrupt #1
115	XABUSY	I	Busy signal of DSP process operation "L"
116	THLD	I	Playback speed monitoring signal
117	SBSY	I	Sync. signal of subcode block
118	USBINT	I	USB CONT interrupt input
119	SSI	I	Serial bus data input
120	SSO_3V	O	Serial bus data output
121	SSCK_3V	I	Serial bus clock input
122	RXD_3V	I	RS-232C reception
123	TXD_3V	O	RS-232C transmission
124	FILM	O	Repeat-first field flag output
125	OSD_CS	O	Select signal for OSD
126	OSD_DATA	O	Data for OSD
127	OSD_CLK	O	Clock for OSD
128	MD0	I	GND fixed
129	MD1	I	GND fixed
130	MD2	I	GND fixed
131	GND	–	Ground
132	V2R5	–	Power supply (+ 2.5 V)
133	GND	–	Ground
134	X1	–	Clock connection
135	X0	–	Clock connection
136	V3R3	–	Power supply (+ 3.3 V)
137	RESET1	–	Not used
138	STOP_ST	O	Operating state output of disc
139	XCSDF2	O	Not used
140	XDREQ0	I	DMA request input from the EBY CHIP
141	DACK0	O	DMA response output to the EBY CHIP
142	PB2	–	Not used
143	XDREQ1	I	DMA request input from the AV-1 CHIP
144	XDACK1	O	DMA response output to the AV-1 CHIP
145	EN_FLOW	–	Not used
146	DDC_ON	O	Communication enable signal of the HDMI CONT
147	XDFCS3	–	Not used
148	GND	–	Ground

No.	Pin Name	I/O	Pin Functions
149	XCSFLSH	O	Chip select output to Flash ROM
150	XCSAV1	O	Chip select of the AV-1 CHIP
151	XCSEBY	O	Chip select of the EBY Chip
152	XCS3	O	Chip select of the servo DSP
153	XCSSRAM	O	Chip select of the 4M SRAM
154	XCS5	–	Not used
155	XCSUSB	–	Chip select of the USB CONT
156	XCS7	–	Not used
157	V3R3	–	Power supply (+ 3.3 V)
158	V2R5	–	Power supply (+ 2.5 V)
159	NMIX	–	+ 3.3 V fixed
160	HSTX	–	+ 2.5 V fixed
161	HXRST	I	Reset from the sub CPU
162	XWAIT	I	Read/write completion of data Acknowledge signal input
163	XAMUTE	O	Last stage mute of 2 ch audio output
164	XMMUTE	O	Audio multi ch mute
165	XRD	O	Control signal (read)
166	XWRL	O	Control signal (write lower)
167	XWRH	O	Control signal (write upper)
168	GND	–	Ground
169	SYSCLK	–	Not used
170	DFRST0	O	DAC reset (for front L/R)
171	DFRST1	O	Not used
172	XCSDF0	O	DAC (front) chip select or latch
173	P94	–	Not used
174	P95	–	Not used
175	P96	–	Not used
176	TM_ENT	–	Not used

PE5286B (DVDM ASSY: IC701)

• EBY-Chip IC

● Pin Function

No.	Pin Name	I/O	Pin Function
1	GND	–	Ground
2	GND	–	Ground
3	VDD3.3	–	Power supply (+ 3.3 V)
4	DMCK	I	System clock of the DVD/CD-ROM decoder
5	DMACKI	I	33 MHz input
6	BUNRI	I	GND fixed
7	DSPA0	–	Not used
8	DSPA1	–	Not used
9	DSPA2	–	Not used
10	XAWR	–	Not used
11	XASACK	–	Not used
12	ASREQ	–	Not used
13	SDATA7	O	Data bus 7 for VIDEO_DMA channel
14	SDATA6	O	Data bus 6 for VIDEO_DMA channel
15	VDD2.5	–	Power supply (+ 2.5 V)
16	GND	–	Ground
17	GND	–	Ground
18	VDD2.5	–	Power supply (+ 2.5 V)
19	SDATA5	O	Data bus 5 for VIDEO_DMA channel
20	SDATA4	O	Data bus 4 for VIDEO_DMA channel
21	SDATA3	O	Data bus 3 for VIDEO_DMA channel
22	SDATA2	O	Data bus 2 for VIDEO_DMA channel
23	SDATA1	O	Data bus 1 for VIDEO_DMA channel
24	SDATA0	O	Data bus 0 for VIDEO_DMA channel
25	XSACK	O	Transfer response pin to VIDEO_DMA channel
26	GND	–	Ground
27	VDD2.5	–	Power supply (+ 2.5 V)
28	XWR	O	Strobe signal output for VIDEO_DMA channel
29	SREQ	I	Data transfer request pin from VIDEO_DMA channel
30	XAVTRM	–	Not used
31	XDFSCK	O	Clock output for data transmission
32	XDFSO	O	Data transmission pin
33	PA5	–	Not used
34	PA4	–	Not used
35	CDD0	–	Not used
36	DIFOUT	–	Not used
37	CKE	O	Enable signal output of SDCLK
38	CSB	O	Chip select signal output for SDRAM
39	DD15	I/O	Data bus 15 for DRAM
40	VDD3.3	–	Power supply (+ 3.3 V)
41	GND	–	Ground
42	DD14	I/O	Data bus 14 for DRAM
43	DD13	I/O	Data bus 13 for DRAM
44	DD12	I/O	Data bus 12 for DRAM
45	DD11	I/O	Data bus 11 for DRAM
46	DD10	I/O	Data bus 10 for DRAM
47	DD9	I/O	Data bus 9 for DRAM
48	DD8	I/O	Data bus 8 for DRAM
49	DD7	I/O	Data bus 7 for DRAM

No.	Pin Name	I/O	Pin Function
50	VDD3.3	–	Power supply (+ 3.3 V)
51	GND	–	Ground
52	GND	–	Not used
53	VDD2.5	–	Power supply (+ 2.5 V)
54	VDD3.3	–	Power supply (+ 3.3 V)
55	DD6	I/O	Data bus 6 for DRAM
56	DD5	I/O	Data bus 5 for DRAM
57	DD4	I/O	Data bus 4 for DRAM
58	DD3	I/O	Data bus 3 for DRAM
59	DD2	I/O	Data bus 2 for DRAM
60	DD1	I/O	Data bus 1 for DRAM
61	DD0	I/O	Data bus 0 for DRAM
62	SDCLK	O	Operating clock output for SDRAM
63	GND	–	Ground
64	VDD2.5	–	Power supply (+ 2.5 V)
65	XDWE	O	WE signal for DRAM
66	XDOE	O	OE signal for DRAM
67	XDCAS	O	CAS signal for DRAM
68	XCASH	O	Upper 8 bit CAS signal output of 16 bit DRAM
69	XDRAS	O	RAS signal for DRAM
70	DA13	–	Not used
71	DA12	–	Not used
72	DA11	O	Address bus 11 for DRAM
73	GND	–	Ground
74	VDD2.5	–	Power supply (+ 2.5 V)
75	DA10	O	Address bus 10 for DRAM
76	DA9	O	Address bus 9 for DRAM
77	DA8	O	Address bus 8 for DRAM
78	VDD2.5	–	Power supply (+ 2.5 V)
79	GND	–	Ground
80	DA7	O	Address bus 7 for DRAM
81	DA6	O	Address bus 6 for DRAM
82	DA5	O	Address bus 5 for DRAM
83	DA4	O	Address bus 4 for DRAM
84	VDD3.3	–	Power supply (+ 3.3 V)
85	PDO3	–	Not used
86	DA3	O	Address bus 3 for DRAM
87	DA2	O	Address bus 2 for DRAM
88	DA1	O	Address bus 1 for DRAM
89	DA0	O	Address bus 0 for DRAM
90	TCM1	I	GND fixed
91	GND	–	Ground
92	VDD2.5	–	Power supply (+ 2.5 V)
93	SDACK	I	DMA response signal input
94	XSDREQ	O	DMA request output
95	XSWAIT	O	Wait signal output
96	XSCL1	I	Chip select input
97	XSRD	I	Read signal input
98	XSWR	I	Write signal input
99	SAD7	I/O	Data bus D15
100	SAD6	I/O	Data bus D14
101	SAD5	I/O	Data bus D13
102	SAD4	I/O	Data bus D12

No.	Pin Name	I/O	Pin Function
103	VDD3.3	–	Power supply (+ 3.3 V)
104	VDD2.5	–	Power supply (+ 2.5 V)
105	GND	–	Ground
106	GND	–	Ground
107	VDD3.3	–	Power supply (+ 3.3 V)
108	SAD3	I/O	Data bus D11
109	SAD2	–	Data bus D10
110	SAD1	–	Data bus D9
111	SAD0	–	Data bus D8
112	XIRQ10	O	Interruption request output
113	XIRQ11	O	Interruption request output
114	SA0	I	Address bus A0
115	SA1	I	Address bus A1
116	SA2	I	Address bus A2
117	SA3	I	Address bus A3
118	SA4	I	Address bus A4
119	SA5	I	Address bus A5
120	SA6	I	Address bus A6
121	SA7	I	Address bus A7
122	SA8	I	Address bus A8
123	SA9	I/O	Address bus A9
124	SA10	I/O	Address bus A10
125	SA11	I/O	Address bus A11
126	SA12	I/O	Address bus A12
127	SA13	I/O	Address bus A13
128	SA14	I/O	Address bus A14
129	SA15	I/O	Address bus A15
130	VDD2.5	–	Power supply (+ 2.5 V)
131	GND	–	Ground
132	SA16	I/O	Address bus A16
133	SA17	I/O	GND fixed
134	SA18	I/O	GND fixed
135	SA19	I/O	GND fixed
136	FSX	I	FSX signal input from the CD decoder
137	EFLG	I	EFLG signal input from the CD decoder
138	NCO	–	Not used
139	LETTER	O	LETTER signal output
140	SQUEEZE	O	SQUEEZE signal output
141	FGPL	I	Spindle motor rotation pulse input
142	RERR	O	Control output for rough servo
143	PPWM	O	PWM output for phase servo
144	GND	–	Ground
145	VDD3.3	–	Power supply (+ 3.3 V)
146	VPWM	O	5-bit PWM output for velocity servo
147	FPWM	O	7-bit PWM output for FG servo
148	TCM2	I	GND fixed
149	VCOCLK	I	System clock of the spindle demodulator
150	GND	–	Ground
151	DUTY50	O	Pulse output of duty 50 %
152	AFC	O	Output frequency error of VCOCLK and reference clock as a PWD pulse
153	APC	O	Output a PLL phase error as a PWD pulse
154	VDD3.3	–	Power supply (+ 3.3 V)
155	GND	–	Ground

No.	Pin Name	I/O	Pin Function
156	GND	–	Ground
157	VDD2.5	–	Power supply (+ 2.5 V)
158	VDD3.3	–	Power supply (+ 3.3 V)
159	ATC	O	Output a direct current error of a RF signal as a PWD pulse
160	ASC	O	Output frequency error of a sync period as a PWD pulse
161	XRESET	I	Reset input
162	T_DET	–	Not used
163	DEFECT	I	External defect input
164	VDD2.5	–	Power supply (+ 2.5 V)
165	AVDD	–	Power supply apply for built-in A/D converter (+ 2.5 V)
166	AVDD	–	Power supply apply for built-in A/D converter (+ 2.5 V)
167	NC	–	GND fixed
168	VRT	I	Reference voltage input for built-in A/D converter
169	VRTS	O	VRT connection fixed
170	VRC	O	Center voltage output of the built-in A/D converter
171	NC	O	GND fixed
172	AIN	I	Analog RF signal input
173	VRBS	O	VRB connection fixed
174	VRB	I	Reference voltage input for built-in A/D converter
175	NC	–	GND fixed
176	AGND	–	Ground for built-in A/D converter
177	AGND	–	Ground for built-in A/D converter
178	GND	–	Ground
179	SBSO	I	Subcode data input of CD
180	SCOR	I	Subcode sync input of CD
181	WFCK	I	Frame clock input of CD
182	GND	–	Ground
183	VDD2.5	–	Power supply (+ 2.5 V)
184	EXCK	O	Shift clock output for subcode data
185	CDDT	I	Audio data input from the CD decoder
186	CDLR	I	LRCK signal input from the CD decoder
187	CDBCK	I	Bit clock input from the CD decoder
188	C2FI	I	C2 error flag input from the CD decoder
189	CKCD	I	Audio I/F master clock (16.9 MHz)
190	PD5	O	Digital pixel data 5
191	VDD2.5	–	Power supply (+ 2.5 V)
192	BCK	O	Bit clock output to DAC
193	LRCK	O	LRCK signal output to DAC
194	ADATA0	O	Serial data output to DAC
195	RWDIN	I/O	Mirror detecting signal input/output
196	BCA	I/O	Mirror detecting signal input/output
197	VREQEN	–	Not used
198	AREQEN	–	Not used
199	ASDATA7	–	Not used
200	ASDATA6	–	Not used
201	ASDATA5	–	Not used
202	ASDATA4	–	Not used
203	ASDATA3	–	Not used
204	ASDATA2	–	Not used
205	ASDATA1	–	Not used
206	ASDATA0	–	Not used
207	VDD3.3	–	Power supply (+ 3.3 V)
208	VDD2.5	–	Power supply (+ 2.5 V)

M65776BFP (DVDM ASSY: IC751)

• AV-1 IC

● Pin Function

No.	Pin Name	I/O	Pin Function
1	GND	–	Ground
2	BCLK	I	Strobe signal of BD pin
3	BDEN	I	Ground fixed
4	BDREQ	O	Data request signal
5	BSECH	I	Ground fixed
6	D0	I/O	Data bus
7	D1	I/O	Data bus
8	D2	I/O	Data bus
9	D3	I/O	Data bus
10	D4	I/O	Data bus
11	D5	I/O	Data bus
12	VDD18	–	Power supply (+ 1.8 V)
13	VDD33	–	Power supply (+ 3.3 V)
14	D6	I/O	Data bus
15	D7	I/O	Data bus
16	D8	I/O	Data bus
17	D9	I/O	Ground
18	D10	I/O	Data bus
19	D11	I/O	Data bus
20	GND	–	Ground
21	D12	I/O	Data bus
22	D13	I/O	Data bus
23	D14	I/O	Data bus
24	D15	I/O	Data bus
25	A0	I	Address bus
26	A1	I	Address bus
27	VDD18	–	Power supply (+ 1.8 V)
28	VDD33	–	Power supply (+ 3.3 V)
29	A2	I	Address bus
30	A3	I	Address bus
31	A4	I	Address bus
32	A5	I	Address bus
33	A6	I	Address bus
34	A7	I	Address bus
35	GND	–	Ground
36	A8	I	Address bus
37	A9	I	Address bus
38	A10	I	Address bus
39	A11	I	Address bus
40	XCSAV1	I	AV1 chip select
41	XRD	I	Control signal (read)
42	VDD18	–	Power supply (+ 1.8 V)
43	VDD33	–	Power supply (+ 3.3 V)
44	XWRH	I	Control signal (write upper)
45	XWRL	I	Control signal (write lower)
46	XWAIT	TO	Read/write completion of data Acknowledge signal input
47	XINT0	O	Interruption request 0
48	XINT1	O	Interruption request 1
49	XINT2	O	Interruption request 2

No.	Pin Name	I/O	Pin Function
50	GND	–	Ground
51	XDREQ 1	O	DMA request signal for OSD bit map transfer
52	XDACK10	I	DMA acknowledge signal for OSD bit map transfer
53	MA3	O	Address bus 3 for SDRAM
54	MA4	O	Address bus 4 for SDRAM
55	MA2	O	Address bus 2 for SDRAM
56	VDD18	–	Power supply (+ 1.8 V)
57	VDD33	–	Power supply (+ 3.3 V)
58	MA5	O	Address bus 5 for SDRAM
59	MA1	O	Address bus 1 for SDRAM
60	MA6	O	Address bus 6 for SDRAM
61	MA0	O	Address bus 0 for SDRAM
62	MA7	O	Address bus 7 for SDRAM
63	MA10	O	Address bus 10 for SDRAM
64	GND	–	Ground
65	MA8	O	Address bus 8 for SDRAM
66	MBA1	O	SDRAM bank selection 1
67	MA9	O	Address bus 9 for SDRAM
68	MBA0	O	SDRAM bank selection 0
69	MA11	O	Address bus 11 for SDRAM
70	DCS	O	Not Used
71	VDD18	–	Power supply (+ 1.8 V)
72	VDD33	–	Power supply (+ 3.3 V)
73	DCS2	O	Not Used
74	DCS3	O	SDRAM chip select
75	DCS4	O	Not Used
76	DCS5	O	Not Used
77	RAS	O	RAS (Row Address Strobe) control signal of SDRAM
78	CAS	O	CAS (Column Address Strobe) control signal of SDRAM
79	MCLK	O	Operating clock of SDRAM
80	DWE	O	Write Enable signal of SDRAM
81	GND	–	Ground
82	DQMU	O	DQM control line (Upper Byte mask) of SDRAM
83	DQML	O	DQM control line (Lower Byte mask) of SDRAM
84	MD7	I/O	Data bus 7 for SDRAM
85	MD8	I/O	Data bus 8 for SDRAM
86	MD6	I/O	Data bus 6 for SDRAM
87	MD9	I/O	Data bus 9 for SDRAM
88	VDD18	–	Power supply (+ 1.8 V)
89	VDD33	–	Power supply (+ 3.3 V)
90	MD5	I/O	Data bus 5 for SDRAM
91	MD10	I/O	Data bus 10 for SDRAM
92	MD4	I/O	Data bus 4 for SDRAM
93	MD11	I/O	Data bus 11 for SDRAM
94	MD3	I/O	Data bus 3 for SDRAM
95	MD12	I/O	Data bus 12 for SDRAM
96	GND	–	Ground
97	MD2	I/O	Data bus 2 for SDRAM
98	MD13	I/O	Data bus 13 for SDRAM
99	MD1	I/O	Data bus 1 for SDRAM
100	MD14	I/O	Data bus 14 for SDRAM
101	MD0	I/O	Data bus 0 for SDRAM
102	MD15	I/O	Data bus 15 for SDRAM

No.	Pin Name	I/O	Pin Function
103	VDD18	–	Power supply (+ 1.8 V)
104	VDD33	–	Power supply (+ 3.3 V)
105	CLKO	–	Not Used
106	27MAV1	I	System clock input (27 MHz)
107	AVDD18	–	Analog power supply (+ 1.8 V)
108	AGND18	–	Analog ground (1.8 V)
109	NCO	–	Not Used
110	NCO	–	Not Used
111	NCO	–	Not Used
112	GND	–	Ground
113	AVDD33	–	Analog power supply (+ 3.3 V)
114	DAOUTB	AO	Analog ground fixed
115	AVRI	AI	Reference voltage input
116	PAB	AO	Analog current output (for Pb)
117	IREF	AI	Reference current input
118	BIAS2	AI	Bias voltage apply 2 of the power source
119	PAY	AO	Analog current output (for Y)
120	BIAS1	AI	Bias voltage apply 1 of the power source
121	AVDD33	–	Analog power supply (+ 3.3 V)
122	PAR	AO	Analog current output (for Pr)
123	AVDD33	–	Analog power supply (+ 3.3 V)
124	AGND33	–	Analog ground (3.3 V)
125	GND	–	Ground
126	NCO	–	Not Used
127	NCO	–	Not Used
128	NCO	–	Not Used
129	NCO	–	Not Used
130	NCO	–	Not Used
131	NCO	–	Not Used
132	NCO	–	Not Used
133	NCO	–	Not Used
134	VDD18	–	Power supply (+ 1.8 V)
135	VDD33	–	Power supply (+ 3.3 V)
136	NCO	–	Not Used
137	NCO	–	Not Used
138	NCO	–	Not Used
139	NCO	–	Not Used
140	NCO	–	Not Used
141	NCO	–	Not Used
142	NCO	–	Not Used
143	NCO	–	Not Used
144	NCO	–	Not Used
145	GND	–	Ground
146	NCO	–	Not Used
147	NCO	–	Not Used
148	NCO	–	Not Used
149	NCO	–	Not Used
150	NCO	–	Not Used
151	NCO	–	Not Used
152	NCO	–	Not Used
153	NCO	–	Not Used
154	NCO	–	Not Used
155	VDD18	–	Power supply (+ 1.8 V)

No.	Pin Name	I/O	Pin Function
156	VDD33	–	Power supply (+ 3.3 V)
157	PDR[8]	O	Not Used
158	PDR[9]	O	Not Used
159	LRCLK	O	Clock for channel distinction (L/R) of PCM audio data
160	CDLRCK	I	L/R clock which is input from CDDSP
161	CDBCK	I	PCM bit clock which is input from CDDSP
162	CDDATA	I	Digital audio interface input for CDDA through
163	CDDIN	I	PCM audio data which is input from CDDSP
164	AO0	O	Serial PCM data for DAC (Lf/Rf data)
165	GND	–	Ground
166	AO1	O	Serial PCM data for DAC (C/Sw data)
167	AO2	O	Serial PCM data for DAC (Ls/Rs data)
168	AOD	O	Serial PCM data for DAC (down mix output)
169	AAD	O	Not Used
170	DOUT0	O	Digital audio interface output
171	DOUT1	O	Not Used
172	22/24AV1	I	Audio clock input
173	DACCLK	O	Not Used
174	VDD18	–	Power supply (+ 1.8 V)
175	VDD33	–	Power supply (+ 3.3 V)
176	DOCLK	O	PCM bit clock
177	PWD	TO	Not Used
178	CSYNC	I	Ground fixed
179	OSDKEY	O	Not Used
180	VSYNC	O	Not Used
181	HSYNC	O	Not Used
182	PXCLKP	O	Not Used
183	AV1CLK	O	27 MHz pixel clock
184	PD0	O	Digital pixel data 0
185	PD1	O	Digital pixel data 1
186	PD2	O	Digital pixel data 2
187	GND	–	Ground
188	PD3	O	Digital pixel data 3
189	PD4	O	Digital pixel data 4
190	PD5	O	Digital pixel data 5
191	PD6	O	Digital pixel data 6
192	PD7	O	Digital pixel data 7
193	HXRST	I	Hardware reset pin
194	HMODE0	I	Operating mode setting (Ground fixed)
195	HMODE1	I	Operating mode setting (+ 3.3 V fixed)
196	TEST0	I	Ground fixed
197	TEST1	I	Ground fixed
198	VDD18	–	Power supply (+ 1.8 V)
199	VDD33	–	Power supply (+ 3.3 V)
200	TEST2	I	Ground fixed
201	BD0	I	Bit stream data input 0
202	BD1	I	Bit stream data input 1
203	BD2	I	Bit stream data input 2
204	BD3	I	Bit stream data input 3
205	BD4	I	Bit stream data input 4
206	BD5	I	Bit stream data input 5
207	BD6	I	Bit stream data input 6
208	BD7	I	Bit stream data input 7

PD0280B (DVDM ASSY: IC1001)

• T-REX IC

Pin Function

No.	Pin Name	I/O	Pin Functions
1	VSS	–	Digital ground
2	XTCK1	I	Test exclusive use input pin
3	XSM	I	Test exclusive use input pin
4	XTST	I	Test exclusive use input pin
5	MST	I	Test exclusive use input pin
6	SMCK	I	Test exclusive use input pin
7	DC9	I	Color signal input
8	DC8	I	Color signal input
9	DC7	I	Color signal input
10	VDDI	–	VDD for Core (+ 2.5 V)
11	VSS	–	Digital ground
12	DC6	I	Color signal input
13	DC5	I	Color signal input
14	DC4	I	Color signal input
15	DC3	I	Color signal input
16	VDDE	–	VDD for I/O (+ 3.3 V)
17	DC2	I	Color signal input
18	DC1	I	Color signal input
19	DC0	I	Color signal input
20	DY0	I	Luminance signal input
21	VSS	–	Digital ground
22	DY1	I	Luminance signal input
23	DY2	I	Luminance signal input
24	DY3	I	Luminance signal input
25	DY4	I	Luminance signal input
26	DY5	I	Luminance signal input
27	DY6	I	Luminance signal input
28	DY7	I	Luminance signal input
29	DY8	I	Luminance signal input
30	DY9	I	Luminance signal input
31	VSS	–	Digital ground
32	DI0	I	Through data input
33	DI1	I	Through data input
34	DI2	I	Through data input
35	DI3	I	Through data input
36	DI4	I	Through data input
37	DI5	I	Through data input
38	DI6	I	Through data input
39	DI7	I	Through data input
40	VDDI	–	VDD for Core (+ 2.5 V)
41	VSS	–	Digital ground
42	DI8	I	Through data input
43	DI9	I	Through data input
44	DH	I	Horizontal sync. signal input
45	DV	I	Vertical sync. signal input
46	VDDE	–	VDD for I/O (+ 3.3 V)
47	F1	I	Field identification signal input
48	ALSB	I	I2C slave address setting pin

No.	Pin Name	I/O	Pin Functions
49	SDA	I/O	I2C data I/O
50	SCL	I	I2C clock input
51	VSS	–	Digital ground
52	NRST	I	System reset input
53	TEST0	I	Test exclusive use input pin (Connect to ground)
54	TEST1	I	Test exclusive use input pin (Connect to ground)
55	TEST2	I	Test exclusive use input pin (Connect to ground)
56	TEST3	I	Test exclusive use input pin (Connect to ground)
57	QB0	O	Video data B output
58	QB1	O	Video data B output
59	OVDDE1	–	VDD for I/O (+ 3.3 V)
60	VDDI	–	VDD for Core (+ 2.5 V)
61	VSS	–	Digital ground
62	QB2	O	Video data B output
63	QB3	O	Video data B output
64	QB4	O	Video data B output
65	QB5	O	Video data B output
66	QB6	O	Video data B output
67	QB7	O	Video data B output
68	QB8	O	Video data B output
69	QB9	O	Video data B output
70	VDDI	–	VDD for Core (+ 2.5 V)
71	VSS	–	Digital ground
72	QG0	O	Video data G output
73	QG1	O	Video data G output
74	QG2	O	Video data G output
75	QG3	O	Video data G output
76	VDDE	–	VDD for I/O (+ 3.3 V)
77	QG4	O	Video data G output
78	QG5	O	Video data G output
79	QG6	O	Video data G output
80	QG7	O	Video data G output
81	VSS	–	Digital ground
82	QG8	O	Video data G output
83	QG9	O	Video data G output
84	QR0	O	Video data R output
85	QR1	O	Video data R output
86	QR2	O	Video data R output
87	QR3	O	Video data R output
88	QR4	O	Video data R output
89	QR5	O	Video data R output
90	QR6	O	Video data R output
91	VSS	–	Digital ground
92	OVDDE2	–	VDD for I/O (+ 3.3 V)
93	QR7	O	Video data R output
94	QR8	O	Video data R output
95	QR9	O	Video data R output
96	QV	O	Vertical sync. signal output
97	QH	O	Horizontal sync. signal output
98	QDE	O	Data enable signal output

No.	Pin Name	I/O	Pin Functions
99	QCLK	O	Video clock output
100	VDDI	–	VDD for Core (+ 2.5 V)
101	VSS	–	Digital ground
102	EXCLK	I	Video clock input in external PLL use
103	OVDDE3	–	VDD for I/O (+ 3.3 V)
104	PH1	O	Signal output 1 for external PLL comparator
105	NC	–	Not used
106	AVS1	–	Analog ground for PLL
107	AVD1	–	Analog VDD for PLL (3.3 V)
108	CPO	O	Built-in PLL charge pump output
109	NC	–	Not used
110	VCI	I	Built-in PLL VCO input
111	AVS2	–	Analog ground for PLL
112	AVD2	–	Analog VDD for PLL (3.3 V)
113	NC	–	Not used
114	PH2	O	Signal output 2 for external PLL comparator
115	PLLEN	I	Built-in PLL/external PLL selection
116	OVDDE4	–	VDD for I/O (+ 3.3 V)
117	DCLK	I	27 MHz clock input
118	OVSS1	–	Digital ground
119	DCLKP	I	DCLK polarity setting pin
120	VDDI	–	VDD for Core (+ 2.5 V)

CD0040AF (DVDM ASSY: IC901)

• PRO-U (Video Encoder) IC

● Pin Function

No.	Pin Name	I/O	Pin Functions
1	OVDD	–	VDD for I/O (+ 3.3 V)
2	CLKI	I	27 MHz clock input
3	TEST7	I	Test input (connect to ground)
4	PLL_EN	I	PLL enable input
5	PI0	I/O	ITU-R BT.656/601 input
6	PI1	I/O	ITU-R BT.656/601 input
7	PI2	I/O	ITU-R BT.656/601 input
8	PI3	I/O	ITU-R BT.656/601 input
9	PI4	I/O	ITU-R BT.656/601 input
10	PI5	I/O	ITU-R BT.656/601 input
11	PI6	I/O	ITU-R BT.656/601 input
12	PI7	I/O	ITU-R BT.656/601 input
13	PI8	I/O	ITU-R BT.656/601 input
14	PI9	I/O	ITU-R BT.656/601 input
15	NHSI	I	Horizontal sync. input
16	NVSI	I	Vertical sync. input
17	OVSS	–	Digital ground for I/O
18	THMD	I	Through mode setting
19	CVSS	–	Digital ground for core
20	NVSO	O	Horizontal sync. output
21	NHSO	O	Vertical sync. output
22	PO9	I/O	ITU-R BT.656/601 output
23	PO8	I/O	ITU-R BT.656/601 output
24	PO7	I/O	ITU-R BT.656/601 output
25	PO6	I/O	ITU-R BT.656/601 output
26	OVDD	–	VDD for I/O (+ 3.3 V)
27	OVSS	–	Digital ground for I/O
28	PO5	I/O	ITU-R BT.656/601 output
29	PO4	I/O	ITU-R BT.656/601 output
30	PO3	I/O	ITU-R BT.656/601 output
31	PO2	I/O	ITU-R BT.656/601 output
32	PO1	I/O	ITU-R BT.656/601 output
33	PO0	I/O	ITU-R BT.656/601 output
34	TEST0	I	Test input (connect to ground)
35	OVSS	–	Digital ground for I/O
36	OVDD	–	VDD for I/O (+ 3.3 V)
37	CVDD	–	VDD for core (+ 2.5 V)
38	TEST1	I	Test input (connect to ground)
39	TEST2	I	Test input (connect to ground)
40	CLKO	O	27 MHz clock output
41	YO9	O	ANSI/SMPTE293M output (Y)
42	YO8	O	ANSI/SMPTE293M output (Y)
43	YO7	O	ANSI/SMPTE293M output (Y)
44	YO6	O	ANSI/SMPTE293M output (Y)
45	YO5	O	ANSI/SMPTE293M output (Y)
46	OVDD	–	VDD for I/O (+ 3.3 V)
47	OVSS	–	Digital ground for I/O
48	YO4	O	ANSI/SMPTE293M output (Y)

No.	Pin Name	I/O	Pin Functions
49	YO3	O	ANSI/SMPTE293M output (Y)
50	YO2	O	ANSI/SMPTE293M output (Y)
51	YO1	O	ANSI/SMPTE293M output (Y)
52	YO0	O	ANSI/SMPTE293M output (Y)
53	OVDD	–	VDD for I/O (+ 3.3 V)
54	CVSS	–	Digital ground for core
55	OVSS	–	Digital ground for I/O
56	CO0	O	ANSI/SMPTE293M output (Cb/Cr)
57	CO1	O	ANSI/SMPTE293M output (Cb/Cr)
58	CO2	O	ANSI/SMPTE293M output (Cb/Cr)
59	CO3	O	ANSI/SMPTE293M output (Cb/Cr)
60	CO4	O	ANSI/SMPTE293M output (Cb/Cr)
61	OVDD	–	VDD for I/O (+ 3.3 V)
62	OVSS	–	Digital ground for I/O
63	CO5	O	ANSI/SMPTE293M output (Cb/Cr)
64	CO6	O	ANSI/SMPTE293M output (Cb/Cr)
65	CO7	O	ANSI/SMPTE293M output (Cb/Cr)
66	CO8	O	ANSI/SMPTE293M output (Cb/Cr)
67	CO9	O	ANSI/SMPTE293M output (Cb/Cr)
68	FILM	O	Film detection flag output
69	RFFI	I	MPEG information input
70	OVSS	–	Digital ground for I/O
71	CVDD	–	VDD for core (+ 2.5 V)
72	IVDD	–	VDD for I/O (+ 3.3 V)
73	OVDD	–	VDD for I/O (+ 3.3 V)
74	MD19	I/O	SDRAM data I/O
75	MD18	I/O	SDRAM data I/O
76	MD17	I/O	SDRAM data I/O
77	MD16	I/O	SDRAM data I/O
78	OVDD	–	VDD for I/O (+ 3.3 V)
79	OVSS	–	Digital ground for I/O
80	MA3	O	SDRAM address output
81	MA4	O	SDRAM address output
82	MA2	O	SDRAM address output
83	MA5	O	SDRAM address output
84	OVDD	–	VDD for I/O (+ 3.3 V)
85	OVSS	–	Digital ground for I/O
86	MA1	O	SDRAM address output
87	MA6	O	SDRAM address output
88	MA0	O	SDRAM address output
89	MA7	O	SDRAM address output
90	OVSS	–	Digital ground for I/O
91	IVSS	–	Digital ground for I/O
92	CVSS	–	Digital ground for core
93	OVDD	–	VDD for I/O (+ 3.3 V)
94	MA10	O	SDRAM address output
95	MA8	O	SDRAM address output
96	MA11	O	SDRAM address output
97	MA9	O	SDRAM address output
98	OVDD	–	VDD for I/O (+ 3.3 V)

No.	Pin Name	I/O	Pin Functions
99	OVSS	–	Digital ground for I/O
100	RAS	O	Command output of SDRAM Row Address Strobe
101	DQM	O	SDRAM DQM output
102	CAS	O	Command output of SDRAM Column Address Strobe
103	MCLK	O	SDRAM clock output (54 MHz)
104	WE	O	SDRAM Write Enable output
105	TEST3	I	Test input (connect to ground)
106	TEST4	I	Test input (connect to ground)
107	OVSS	–	Digital ground for I/O
108	OVDD	–	VDD for I/O (+ 3.3 V)
109	CVDD	–	VDD for core (+ 2.5 V)
110	MD7	I/O	SDRAM data I/O
111	MD8	I/O	SDRAM data I/O
112	MD6	I/O	SDRAM data I/O
113	MD9	I/O	SDRAM data I/O
114	OVDD	–	VDD for I/O (+ 3.3 V)
115	OVSS	–	Digital ground for I/O
116	MD5	I/O	SDRAM data I/O
117	MD10	I/O	SDRAM data I/O
118	MD4	I/O	SDRAM data I/O
119	MD11	I/O	SDRAM data I/O
120	OVDD	–	VDD for I/O (+ 3.3 V)
121	OVSS	–	Digital ground for I/O
122	MD3	I/O	SDRAM data I/O
123	MD12	I/O	SDRAM data I/O
124	MD2	I/O	SDRAM data I/O
125	MD13	I/O	SDRAM data I/O
126	OVSS	–	Digital ground for I/O
127	CVSS	–	Digital ground for core
128	OVDD	–	VDD for I/O (+ 3.3 V)
129	MD1	I/O	SDRAM data I/O
130	MD14	I/O	SDRAM data I/O
131	MD0	I/O	SDRAM data I/O
132	MD15	I/O	SDRAM data I/O
133	SLV	I	Slave address setting input of MPU Interface
134	RFFO	O	MPEG information output
135	SDA	I/O	MPU Interface data I/O
136	SCL	I	MPU Interface clock input
137	SRN	I	System reset input
138	OVSS	–	Digital ground for I/O
139	CVDD	–	VDD for I/O (+ 3.3 V)
140	PLL_VDD	–	VDD for PLL (+ 2.5 V)
141	VPDX	I	Connect to ground
142	TEST6	I	Test input (connect to ground)
143	PLL_GND	–	Ground for PLL
144	IVDD	–	VDD for I/O (+ 3.3 V)

■ SII9190CTG64 (DVDM ASSY: IC1051)

• HDMI Transmitter IC

● Pin Function

No.	Pin Name	I/O	Pin Functions
1	VCC	–	Digital VCC (+ 3.3 V)
2	D1	I	12 bit input pixel data bus
3	D0	I	12 bit input pixel data bus
4	DE	I	Data enable
5	HSYNC	I	Horizontal sync input control signal
6	VSYNC	I	Vertical sync input control signal
7	SPDIF	I	S/PDIF audio input
8	MCLK	I	Audio input master clock
9	HPD	I	Hot plug detect input
10	RSVDL	I	Reserved for use by silicon,and must be tied LOW
11	INT	O	Interrupt output
12	VCC	–	Digital VCC (+ 3.3 V)
13	GND	–	Digital ground
14	RESET#	I	Reset pin
15	SCL	I	I2C clock
16	SDA	I/O	I2C data
17	PGND1	–	PLL ground
18	PVCC1	–	PLL power supply (+ 3.3 V)
19	EXT_SWING	I	Voltage swing adjust
20	AGND	–	Analog ground
21	TXC-	O	TMDS output clock
22	TXC+	O	TMDS output clock
23	AVCC	–	Analog VCC (+ 3.3 V)
24	TX0-	O	TMDS output data
25	TX0+	O	TMDS output data
26	AGND	–	Analog ground
27	TX1-	O	TMDS output data
28	TX1+	O	TMDS output data
29	AVCC	–	Analog VCC (+ 3.3 V)
30	TX2-	O	TMDS output data
31	TX2+	O	TMDS output data
32	AGND	–	Analog ground
33	PVCC2	–	PLL power supply (+ 3.3 V)
34	PGND2	–	PLL ground
35	VCC	–	Digital VCC (+ 3.3 V)
36	GND	–	Digital ground
37	D23	I	12 bit input pixel data bus
38	D22	I	12 bit input pixel data bus
39	D21	I	12 bit input pixel data bus
40	D20	I	12 bit input pixel data bus
41	D19	I	12 bit input pixel data bus
42	VCC	–	Digital VCC (+ 3.3 V)
43	GND	–	Digital ground
44	D18	I	12 bit input pixel data bus
45	D17	I	12 bit input pixel data bus

No.	Pin Name	I/O	Pin Functions
46	D16	I	12 bit input pixel data bus
47	D15	I	12 bit input pixel data bus
48	GND	–	Digital ground
49	VCC	–	Digital VCC (+ 3.3 V)
50	D14	I	12 bit input pixel data bus
51	D13	I	12 bit input pixel data bus
52	D12	I	12 bit input pixel data bus
53	D11	I	12 bit input pixel data bus
54	D10	I	12 bit input pixel data bus
55	D9	I	12 bit input pixel data bus
56	D8	I	12 bit input pixel data bus
57	IDCK	I	Input data clock
58	D7	I	12 bit input pixel data bus
59	D6	I	12 bit input pixel data bus
60	D5	I	12 bit input pixel data bus
61	D4	I	12 bit input pixel data bus
62	D3	I	12 bit input pixel data bus
63	D2	I	12 bit input pixel data bus
64	GND	–	Digital ground

UHC124BF (DVDM ASSY: IC1201)

• USB Driver IC

● Pin Function

No.	Pin Name	I/O	Pin Functions
1	VDD	–	3.3 V power supply
2	A0	I	Address bus
3	A1	I	Address bus
4	A2	I	Address bus
5	A3	I	Address bus
6	A4	I	Address bus
7	A5	I	Address bus
8	A6	I	Address bus
9	A7	I	Address bus
10	A8	I	Address bus
11	A9	I	Address bus
12	A10	I	Address bus
13	A11	I	Address bus
14	MODE	I	Memory access mode
15	XCS	I	Chip select
16	VSS	–	Ground
17	OSC1	I	Oscillator input
18	OSC2	O	Oscillator output
19	LPF	I	PLL filter
20	VDD	–	3.3 V power supply
21	TEST0	I/O	Not used
22	TEST1	I/O	Not used
23	TEST2	I/O	Not used
24	TEST3	I/O	Not used
25	X0VC11	I	Over current indicator
26	X0VC12	I	Over current indicator
27	X0VC13	I	Over current indicator
28	X0VC14	I	Over current indicator
29	XPWR1	O	Power on switch
30	XPWR2	O	Power on switch
31	XPWR3	O	Power on switch
32	XPWR4	O	Power on switch
33	VDD	–	3.3 V power supply
34	DP1	I/O	Port data for USB I/O
35	DM1	I/O	Port data for USB I/O
36	VSS	–	Ground
37	DP2	I/O	Port data for USB I/O
38	DM2	I/O	Port data for USB I/O
39	DP3	I/O	Port data for USB I/O
40	DM3	I/O	Port data for USB I/O
41	DP4	I/O	Port data for USB I/O
42	DM4	I/O	Port data for USB I/O
43	TEST4	I/O	Not used
44	D0	I/O	Data bus
45	D1	I/O	Data bus

No.	Pin Name	I/O	Pin Functions
46	D2	I/O	Data bus
47	D3	I/O	Data bus
48	VDD	–	3.3 V power supply
49	VSS	–	Ground
50	D4	I/O	Data bus
51	D5	I/O	Data bus
52	D6	I/O	Data bus
53	D7	I/O	Data bus
54	XRESET	I	Master reset
55	XWR	I	Memory write strobe
56	XRD	I	Memory read strobe
57	TMS0	I	Not used
58	TMS1	I	Not used
59	TMS2	I	Not used
60	TMS3	I	Not used
61	XINT	O	Interrupt
62	ADS	I	Address/ data select
63	VSS	–	Ground
64	VSS	–	Ground

PE5557B (DVDM ASSY: IC1501)

• LCD Control IC

● Pin Function

No.	Pin Name	I/O	Pin Functions
1	KEY_OUT2	O	Key matrix output
2	KEY_OUT3	O	Key matrix output
3	KEY_OUT4	O	Key matrix output
4	AVSS	–	Analog ground
5	LCD_VR	O	LCD display density adjustment
6	P131	–	Not used
7	AVREF1	–	A/D reference voltage input
8	SI2	–	Not used
9	SO2	–	Not used
10	XSCK2	–	Not used
11	S_MTOF	I	FR microcomputer communication
12	S_FITOM	O	FR microcomputer communication
13	SSCK	O	FR microcomputer communication
14	XREDY_3V	O	FR microcomputer communication control
15	LT1_3V	I	FR microcomputer communication control
16	REL_CS	O	Real time clock select signal
17	REL_DATA	I/O	Real time clock data
18	REL_CLK	O	Real time clock signal
19	DB0	I/O	LCD data bus
20	DB1	I/O	LCD data bus
21	DB2	I/O	LCD data bus
22	DB3	I/O	LCD data bus
23	DB4	I/O	LCD data bus
24	DB5	I/O	LCD data bus
25	DB6	I/O	LCD data bus
26	DB7	I/O	LCD data bus
27	E	O	LCD enable signal
28	R/XW	O	LCD read/write signal
29	RS	O	LCD mode select signal
30	KRY_OUT5	O	Key matrix output
31	P54	I	State setting input
32	P55	I	State setting input
33	VSS1	–	Digital ground
34	P56	I	State setting input
35	P57	I	State setting input
36	XBRIGHT	–	Not used
37	P61	–	Not used
38	PWR_KEY	I	Power on key input
39	XLCDON	O	LCD backlight lighting signal
40	P64	–	Not used
41	P65	–	Not used
42	P66	–	Not used
43	P67	–	Not used
44	P30	–	Not used
45	P31	–	Not used
46	P32	–	Not used
47	HXRST	O	System reset signal
48	P_CON	O	Power control signal

No.	Pin Name	I/O	Pin Functions
49	POWER_LED	O	POWER key LED lighting signal
50	KEYLOCK_LED	O	Key lock LED lighting signal
51	PLAY_LED	O	Play LED lighting signal
52	JAMMAA	I	JAMMAER input
53	JAMMAB	I	JAMMAER input
54	JAMMAC	I	JAMMAER input
55	JAMMAD	I	JAMMAER input
56	JAMMAE	I	JAMMAER input
57	JAMMAX	I	JAMMAER input
58	JAMMAY	I	JAMMAER input
59	JAMMAZ	I	JAMMAER input
60	XRESET	I	RESET input
61	IR	I	Remote control signal input
62	POWER_IN	I	External POWER ON signal input
63	LED_OUT1	O	Monitor select LED output
64	LED_OUT2	O	Video select LED output
65	LED_OUT3	O	Audio select LED output
66	P05	–	Not used
67	VSS0	–	Digital ground
68	VDD1	–	Power supply (+ 3.3 V)
69	X2	–	Connect an external clock
70	X1	–	Connect an external clock
71	IC	–	Not used
72	XT2	–	Not used
73	P07	–	Not used
74	VDD0	–	Power supply (+ 3.3 V)
75	AVREF0	–	A/D reference voltage input
76	KEY_IN1	I	Key matrix input
77	KEY_IN2	I	Key matrix input
78	KEY_IN3	I	Key matrix input
79	KEY_IN4	I	Key matrix input
80	KEY_OUT1	O	Key matrix output

LC78652W (DVDM ASSY: IC201)

• Servo DSP IC

● Pin Function

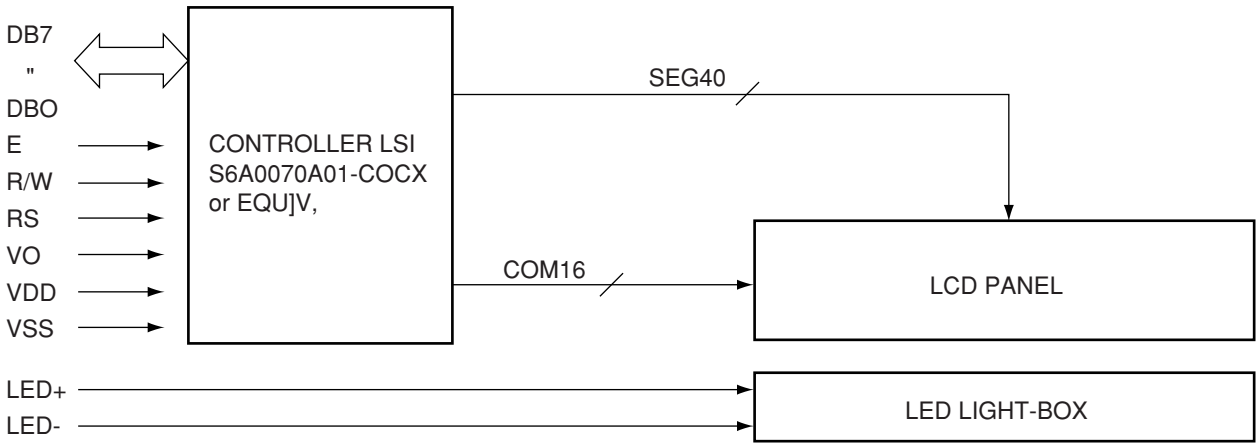
No.	Pin Name	I/O	Pin Function
1	EFMOUT	O	Status output after binarization of EMF
2	C2F	O	C2 flag output
3	ROMXA	O	CD-ROM data output
4	ROMCK	O	Shift clock output for CD-ROM data output
5	LRSY	O	L/R clock output for CD-ROM data output
6	XHSMOVE	O	Tracking bottom bandwidth switch output
7	XABUSY	O	Busy signal output of DSP processing operation
8	XTALOUT	–	Not used
9	FSX	O	Frame sync signal output of CD1
10	SBCK	I	Subcode read clock input
11	SFSY	O	Frame sync signal output of subcode
12	PW	O	Outputs of subcode P, Q, R, S, T, U, V, W
13	VSS	–	Ground
14	XIN	I	Clock input (16.934 MHz)
15	XOUT	–	Not used
16	VDD	–	Power supply (+ 3.3 V)
17	EMPH	–	Not used
18	SBSY	O	Sync signal output of subcode block
19	DOUT	O	Audio EIAJ data output
20	EFLG	O	Error correction state monitor pin of C1 and C2
21	FSEQ	–	Not used
22	THLD	O	Playback speed monitoring pin
23	V_PB	–	Not used
24	CURENT	O	Focus monitoring pin
25	TEST3	I	Test input pin
26	TES	I	Tracking error signal input
27	TEST2	I	Test input pin
28	JITT	I	Quantity of jitter detection signal input of EFM PLL
29	TILTE	I	Tilt error signal input
30	RF_PH	I	RF peak hold signal input
31	RF_BH	I	RF bottom hold signal input
32	TE	I	Tracking error signal input
33	FE	I	Focus error signal input
34	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SCL
35	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SCL
36	SLCO1	O	Control output 1 for SLC
37	SLCO2	O	Control output 2 for SLC
38	TEST1	I	Test input pin
39	EFMIN	I	EFM/EFM+ input
40	VDD	–	+5 V power supply of A/D and D/A for servo
41	VSS	–	Ground of A/D and D/A for servo
42	AUXO	O	D/A auxiliary output
43	TILTDO	O	Tilt control output
44	TBAL	O	Tracking balance control signal output
45	SLDO	–	Not used
46	SPDO	–	Not used
47	FDO	O	Focus control signal output
48	TDO	O	Tracking control signal output
49	VREF	–	D/A reference level for servo

No.	Pin Name	I/O	Pin Function
50	TEST4	I	Test input pin
51	HFL	I/O	Mirror detection signal I/O
52	JT/XRR	–	Not used
53	DEFIN	I	Defect signal control
54	DEFOUT	O	LDD monitor output
55	FG	I	FG counter input
56	CTRF	I	Status input after binarization of EMF
57	RESB	I	Reset input
58	CSB	I	Chip select input
59	RDB	I	Read signal input
60	WRB	I	Write signal input
61	VDD	–	Power supply (+ 5.0 V)
62	VSS	–	Ground
63	D0	I/O	Data bus 0
64	D1	I/O	Data bus 1
65	D2	I/O	Data bus 2
66	D3	I/O	Data bus 3
67	D4	I/O	Data bus 4
68	D5	I/O	Data bus 5
69	D6	I/O	Data bus 6
70	D7	I/O	Data bus 7
71	VSS	–	Ground
72	VDD	–	Power supply (+ 3.3 V)
73	BUSYB	O	Busy signal output
74	SQOUT	–	Not used
75	CQCKB	I	Shift clock input of subcode Q data output
76	RWC	I	Update permission input of subcode Q
77	WRQ	–	Not used
78	VSS	–	Ground
79	VRPFR	–	VCO oscillation range setting of PLL for system clock
80	VCOC	I	PLL filter connection pin for system clock
81	VPDO	O	PLL filter connection pin for system clock
82	VDD	–	Power supply (+ 5.0 V)
83	PDO1	I/O	PLL filter connection pin 1 for EFM playback
84	PDO2	I/O	PLL filter connection pin 2 for EFM playback
85	PDO3	–	Not used
86	VSS	–	Ground
87	PCKIST1	–	Current setting pin 1 of PLL charge pump for EFM playback
88	PCKIST2	–	Current setting pin 2 of PLL charge pump for EFM playback
89	VDD	–	Power supply (+ 5.0 V)
90	DVDFR	–	VCO oscillation range setting pin 1 of PLL for EFM playback
91	CDFR	–	VCO oscillation range setting pin 2 of PLL for EFM playback
92	JV	O	Jitter output of PLL clock for EFM playback
93	PCK	–	Not used
94	LCHP	I	Address input
95	LCHN	I	Sync concordance pulse input of DVD
96	RCHP	I	Sync signal input of DVD
97	RCHN	–	Not used
98	DVDD2	–	Power supply (+ 3.3 V)
99	DVSS	–	Ground
100	LEFM	–	Not used

7.8.2 LCD MODULE

LCD Module (DWG1590)

● **Block Diagram**



● **Pin Function**

No.	Symbol	Level	Pin Function
1	VSS	0V	Ground
2	VDD	5.0V	Supply voltage for logic
3	V0	–	Input voltage for LCD
4	RS	H/L	H: Data, L: Instruction code
5	R/W	H/L	H: Read mode, L: Write mode
6	E	H, H → L	Chip enable signal
7	DB0	H/L	Data bit 0
8	DB1	H/L	Data bit 1
9	DB2	H/L	Data bit 2
10	DB3	H/L	Data bit 3
11	DB4	H/L	Data bit 4
12	DB5	H/L	Data bit 5
13	DB6	H/L	Data bit 6
14	DB7	H/L	Data bit 7
15	LED+	4.2V	Back light anode
16	LED-	0V	Back light cathode

Disc / Content Format Playback Compatibility

General disc compatibility

This player was designed and engineered to be compatible with software bearing one or more of the following logos:

DVD-Video DVD-R DVD-RW

Audio CD Video CD CD-R CD-RW

This player can play discs recorded in either PAL or NTSC format. Use those discs which indicates "**NTSC**" or "**PAL**" on the jacket.
Other formats, including but not limited to the following, are not playable in this player:

DVD-Audio / SACD / DVD-RAM
DVD-ROM / CD-ROM

- DVD-R/RW and CD-R/RW discs (Audio CDs and Video CDs) recorded using a DVD recorder, CD recorder or personal computer may not be playable on this unit. This may be caused by a number of possibilities, including but not limited to: the type of disc used; the type of recording; damage, dirt or condensation on either the disc or the player's pick-up lens.

DVD-R/RW compatibility

- This unit will play DVD-R/RW discs recorded using the DVD-Video format that have been finalized using a DVD-recorder.
- This unit will play DVD-RW discs recorded using the Video Recording (VR) format.
- When playing a VR format DVD-RW discs that was edited on a DVD recorder, the screen may go momentarily black at edited points and/or you may see scenes from immediately before the edited point.
- This unit cannot record DVD-R/RW discs.
- Unfinalized DVD-R/RW discs cannot be played in this player.
- This unit does not support CPRM compliant DVD-R discs.

CD-R/RW compatibility

- This unit will play CD-R and CD-RW discs recorded in CD Audio or Video CD format. However, any other content may cause the disc not to play, or create noise/distortion in the output.
- This unit cannot record CD-R or CD-RW discs.
- This unit cannot play CD-R/RW discs that have not been finalized.

DVD is a trademark of DVD Format/Logo Licensing Corporation.

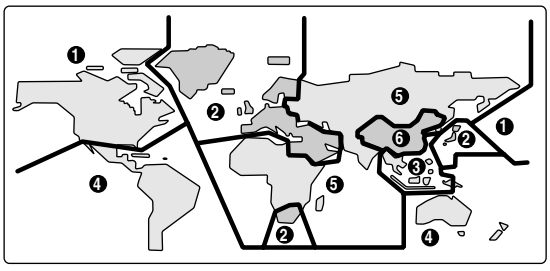
Personal computer-created disc compatibility

- If you record a disc using a personal computer, even if it is recorded in a "compatible format" as listed above, there will be cases in which the disc may not be playable in this machine due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Due to the unique construction of DVD-R/RW and CD-R/RW discs, leaving them for extended periods of time in the pause/still mode at a single place on the disc, or displaying a single menu page may result in the discs' becoming difficult to play at that location on the disc. When playing discs containing important data, users are recommended to construct backup archive discs.

DVD-Video regions

All DVD-Video discs carry a region mark on the case somewhere that indicates which region(s) of the world the disc is compatible with. Your DVD player also has a region mark, which you can find on the rear panel. Discs from incompatible regions will not play in this player. Discs marked ALL will play in any player.



Copy controlled CDs

This player is designed to comply with music CD standards. Operation and playback of CDs that do not comply with music CD standards cannot be guaranteed.

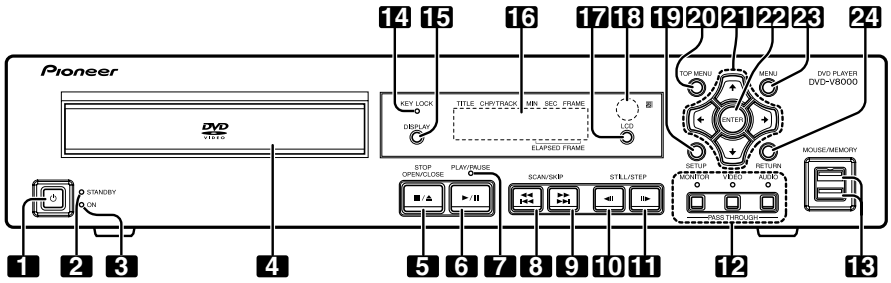
Playback of "DualDisc" media

"**DualDisc**" media are discs with video or audio data complying with DVD standards recorded on one side, and with audio data recorded on the other side intended for playback on CD players.
The audio side opposite to the DVD side of these discs do not meet the physical standards of normal CDs, and may not play properly on this unit. The playback of the DVD side of "**DualDisc**" media is supported, but DVD-audio media cannot be played.
Refer to the manufacturer or your dealer for more information on the specifications and standards of "**DualDisc**" media.

8. PANEL FACILITIES

Controls and Displays

Front panel



1 STANDBY/ON button (⏻)
Press to turn the player ON or set to standby mode.

2 STANDBY indicator
Lights during standby mode.

3 ON indicator
Lights when power is turned ON.

4 Disc tray

5 STOP OPEN/CLOSE button (■/⏏)
Press to stop the disc. In stop mode, press to open or close the disc tray.

6 PLAY/PAUSE button (►/❚❚)
Press to start or resume playback. In the play mode, press to pause playback; press again to resume play.

7 Playback indicator
Lights up during playback.

8 SCAN/SKIP button (◄◄/I◄◄)
Press to jump to the previous chapter or track. Press and hold for fast reverse scanning.

9 SCAN/SKIP button (►►/►►I)
Press to jump to the next chapter or track. Press and hold for fast forward scanning.

10 STILL/STEP button (◄I)
During playback, press to pause playback and display still image; press and hold for reverse slow-motion playback. Press during still image for frame reverse. Press during slow-motion playback to change reverse playback speed. (Enabled only during DVD playback.)

11 STILL/STEP button (I►)
During playback, press to pause playback and display still image; press and hold to perform slow-motion playback. Press during still image for frame advance. Press during slow-motion playback to change playback speed.

12 PASS THROUGH button/indicator (MONITOR, VIDEO, AUDIO)
Use to switch settings for monitor, video, and audio output

MONITOR:
When the button is pressed so that the indicator lights, video signals input to the **VIDEO IN** connectors are output at **MONITOR VIDEO OUT**.

VIDEO:
When the button is pressed so that the indicator lights, video signals input to the **VIDEO IN** connectors are output at **VIDEO OUT**.

AUDIO:
When the button is pressed so that the indicator lights, audio signals input to the **AUDIO IN** connectors are output at **AUDIO OUT** after audio input level adjustment.

13 USB port (MOUSE/MEMORY)
Use to connect a USB mouse, tablet or USB memory device.

14 KEY LOCK indicator
The indicator will flash when a prohibited operation is requested during key lock mode.

15 DISPLAY button
Press to display disc information.

16 LCD display

17 LCD button
Use to switch the information appearing in the main unit display.

18 Remote control sensor

19 SETUP button
Press to display the **SETUP** menu.
Press and hold for one second to open the **ADV. SETUP** menu.
Press again to close the **SETUP** menu or **ADV. SETUP** menu.

20 TOP MENU button
Press to display the top menu of a DVD disc.

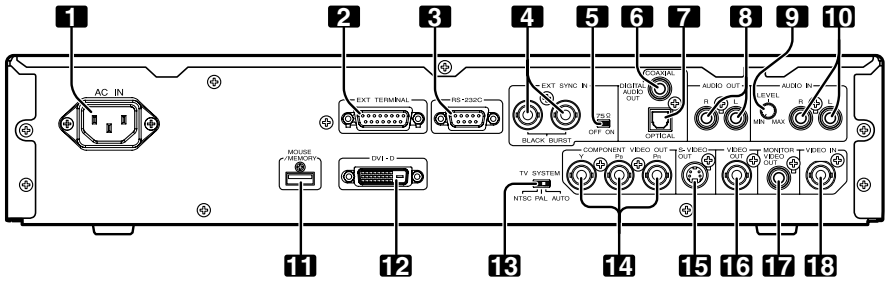
21 Cursor buttons (←, →, ↓, ↑)
Use to select/change items, or to move the cursor.

22 ENTER button
Press to execute the setting or selected item.

23 MENU button
When playing DVD video software, press to display the disc menu.
For DVD-RW media, Video CDs or music CDs, press to display the Disc Navigator.

24 RETURN button
Press to return to previous menu screens when in screens such as **SETUP** menu screen or menu screen.

Rear panel



1 Power cord connector (AC IN)

2 Extend Terminal connector (EXT TERMINAL)

External switches can be connected to control the DVD-V8000.

The connector can also be used as an RS-232C interface.

3 RS-232C interface connector

Acomputer can be connected to allow serial-port control of the DVD-V8000 .

4 External sync signal input connector (EXT SYNC IN)

Input/output terminals for external sync signals .

5 External sync signal terminator switch (75 Ω ON/OFF)

This switch is used to terminate an external sync signal . (Default position: **ON**)

6 Coaxial digital audio output jack (DIGITAL AUDIO OUT COAXIAL)

Outputs coaxial digital audio signals.

7 Optical digital audio output connector (DIGITAL AUDIO OUT OPTICAL)

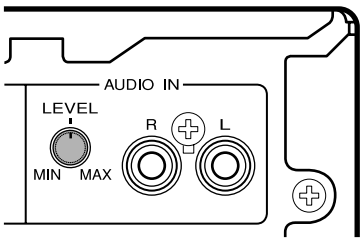
Outputs optical digital audio signals.

8 Audio output jacks (AUDIO OUT L, R)

Outputs analog audio signals.

9 AUDIO IN LEVEL adjustment dial

Use to adjust the level of audio signals input to the audio input connectors. Factory default setting is at the center position;rotating the dial to the left (**MIN**) side reduces the sound level, and rotating the dial to the right (**MAX**) side increases the sound level.



Important

- The DVD-V8000 is provided with video and audio input connectors, and supports the use of 1 Vp-p composite video signals and 2 Vrms (0 dBfs) analog audio signals. If signals are input with levels greatly exceeding these values, the through output signals may generate video noise and audio distortion.
- The range of adjustment possible with the external audio input level dial is from – ∞to +6 dB. However, it should be used only to the degree that the through audio output signal level is 2 Vrms (0 dBfs) or less. Allowing signal levels greater than 2 Vrms may cause sound distortion.

10 AUDIO IN jacks (L, R)

Outputs analog audio signals.

11 USB port (MOUSE/MEMORY)

Can be used to connect a USB mouse/pen tablet, or USB memory device.

12 DVI output connector (DVI-D)

Outputs DVI video.

13 TV system switch (TV SYSTEM NTSC/PAL/AUTO)

When playing video discs, this control changes the output television signal format to match the signal format recorded on the disc. (Default: **AUTO**)

14 Component video output jacks (COMPONENT VIDEO OUT, Y, P_B, P_R)

Outputs component video signals.

15 S-VIDEO output terminal (S-VIDEO OUT)

Outputs S-video signals.

16 Composite video output jack (VIDEO OUT)

Outputs composite video signals.

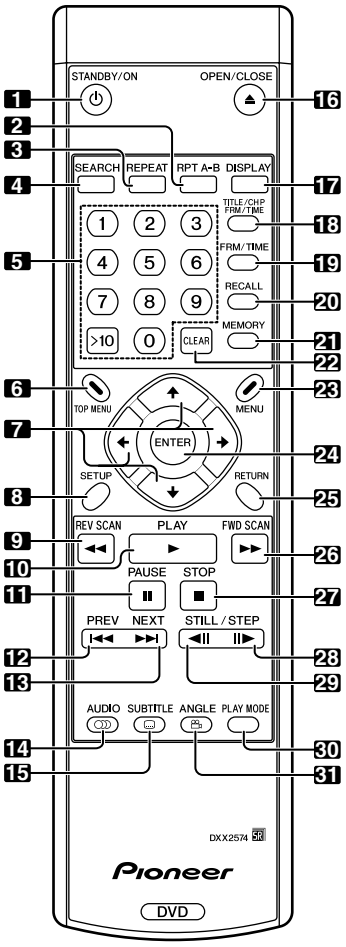
17 Monitor video output jack (MONITOR VIDEO OUT)

Outputs monitor video signals.

18 Composite video input jack (VIDEO IN)

Use to input composite video signals from an external source.

Remote control unit



1 STANDBY/ON button (⏻)
Press to turn the player ON and OFF (standby mode).

2 RPT A-B button
Press to repeat play the specified section.

3 REPEAT button
Press to perform repeat play of individual chapters (or tracks), individual titles or all titles.

4 SEARCH button
Commences search.

5 Number buttons (0 to 9, >10)
Press to specify and play the desired title/chapter/track. Press to select an item in the menu screen. To select a 2-digit number, first press **>10**, and then enter the desired numbers.

6 TOP MENU button
Press to display the top menu of a DVD disc.

7 Cursor buttons (↑, ↓, ←, →)
Selects/changes items, or moves the cursor.

8 SETUP button
Press to open the **SETUP** menu.
Press and hold for one second to open the **ADV. SETUP** menu.
Press again to close the **SETUP** or **ADV. SETUP** menu.

9 REV SCAN button (◄◄)
Press for fast reverse scanning. Scanning speed will change in 3 levels each time the button is pressed.

10 PLAY button (►)
Press to start playback.

11 PAUSE button (❚❚)
During playback, press to pause playback of video/audio. Press again to resume normal playback.

12 PREV button (I◄◄)
Press to jump to the beginning of the current chapter or track, then to previous chapters/tracks.

13 NEXT button (►►I)
Press to jump to the next chapter or track.

14 AUDIO button
Press to switch the audio of the currently playing track.

15 SUBTITLE button
Press to select a subtitle display.

16 OPEN/CLOSE button (⏏)
Press to open or close the disc tray.

17 DISPLAY button
Press to display disc information.

18 TITLE/CHP FRM/TIME button
Press to perform title/chapter/frame/time search.

19 FRM/TIME button
Press to perform frame/time search.

20 RECALL button
Press to display the COMMAND STACK call-up menu.

21 MEMORY button
Press to display COMMAND STACK input menu.

22 CLEAR button
Press to clear repeat playback, random playback, program playback and other settings.

23 MENU button
Press to display DVD disc menu, or the Disc Navigator if a DVD-RW, music CD or Video CD disc is loaded.

24 ENTER button
Press to execute the selected setting or item .

25 RETURN button
Press to return to previous menu screens when in screens such as **SETUP** menu screen or menu screen.

26 FWD SCAN button (►►)
Press to perform fast forward scanning. Scanning speed will change in 3 levels each time the button is pressed.

27 STOP button (■)
Press to stop disc playback.

28 FWD STILL/STEP button (II►)
During playback, press to pause playback and display still image; press and hold to perform slow-motion playback. Press during still image for frame advance. Press during slow-motion playback to change playback speed.

29 REV STILL/STEP button (◄II)
During playback, press to pause playback and display still image; Press and hold for reverse slow-motion playback. Press during still image for frame reverse. Press during slow-motion playback to change reverse playback speed. (Enabled only during DVD playback.)

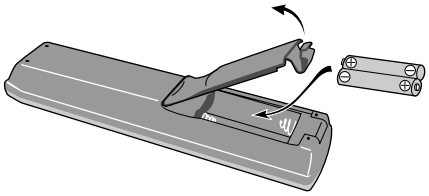
30 PLAY MODE button
Press to display the Play Mode menu.

31 ANGLE button (🎥)
Press to change the camera angle during DVD multi-angle scene playback.

Loading batteries in the remote control unit

Open the battery compartment cover on the back of the remote control unit and insert two AA/R6P batteries.

- Insert the batteries properly so that the positive (+) and negative (–) polarities of the batteries are aligned with the diagram in the compartment.



Important

- Do not mix new and old batteries together .
- Do not use different kinds of batteries together—although they may look similar, different batteries may have different voltages.
- Remove batteries when not using a device for a month or more, to prevent the batteries from leaking. In the cases of battery leakage, thoroughly wipe off leaked liquid and insert new batteries.

When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country/area. D3-4-2-3-1_En

WARNING

Do not use or store batteries in direct sunlight or other excessively hot place, such as inside a car or near a heater. This can cause batteries to leak, overheat, explode or catch fire. It can also reduce the life or performance of batteries. D3-4-2-3-3_En

■ Operating range of remote control unit

Point the remote control unit toward the remote control sensor on the front panel of the main unit to operate. The remote control has a range of up to approximately 7 m, and can be operated in angles up to 30° to left or right from the front of the remote control sensor.

- The remote control unit may not operate correctly if a strong light such as daylight or a fluorescent light shines directly on the remote control sensor.

Operation using a mouse

In addition to the remote control unit, a mouse can also be used to operate the DVD-V8000 if desired.
A USB mouse can be connected to either of the MOUSE/MEMORY ports located in the front and rear panels.
The following operations can be performed by using a mouse:

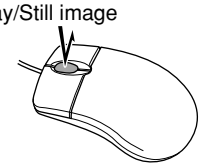
■ Using the scroll wheel during image playback

The DVD-V8000 supports the use of the mouse's scroll wheel to perform operations during video playback.

(1) Clicking the scroll wheel

Click the scroll wheel during playback to display still image. Click the scroll wheel during still image display to resume normal playback.

Play/Still image



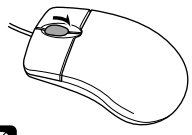
(2) Scrolling backwards

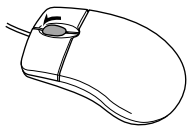
Rotate the scroll wheel backwards to fast-forward the playback. Scroll the wheel backwards during still image display to perform frame advance.

(3) Scrolling forwards

Rotate the scroll wheel forwards to fast-reverse the playback. Scroll the wheel forwards during still image display to perform frame reverse (DVD disc only).

During playback: ►► During playback: ◄◄
During still image: II► During still image: ◄II (DVD only)



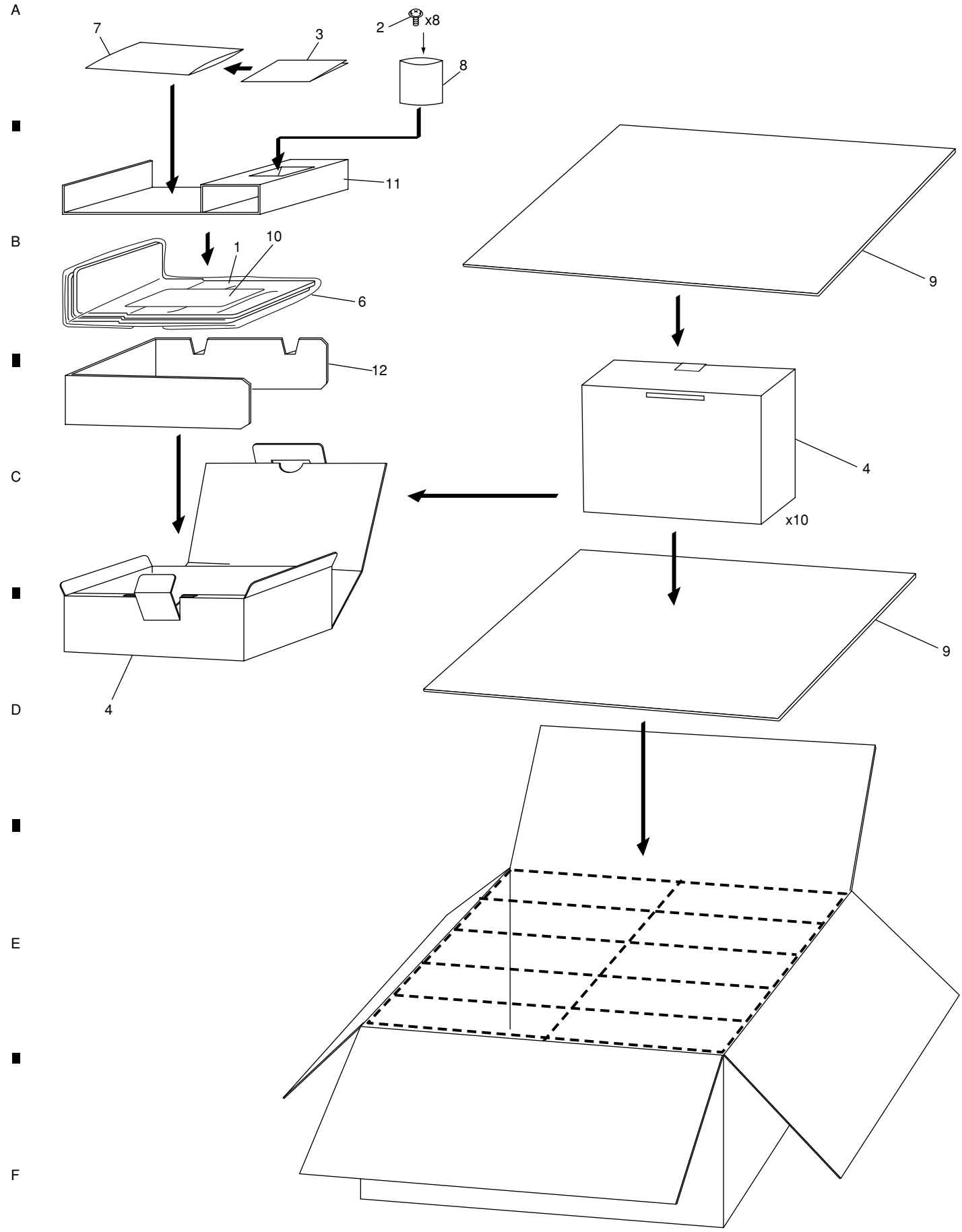


Note

- The same operations can be performed when playing CDs. Clicking the mouse wheel during playback engages the pause mode, and clicking the wheel during the pause releases the pause and resumes playback. Rotating the mouse wheel during playback engages the fast forward and fast reverse functions; rotating the wheel, however, has no effect when the player is in the pause mode.

9. RACK MOUNT KIT (CB-A802)

9.1 PACKING SECTION



• PACKING SECTION Parts list

Mark	No.	Description	Part No.
NSP	1	Rack Mount Bracket (FE)	DNH2706
	2	Screw	AMZ40P080FTB
	3	Instruction Manual (RM)	DRE1037
NSP	4	Packing Case (RM) (Paper)	DHG2655
NSP	5	Master Carton RM (Paper)	DHG2656
	6	Mirror Mat Sheet (300 * 330)	DHL1161
	7	Vinyl Bag	Z21-013
	8	Poly Bag	DHL1162
NSP	9	Master Spacer (Paper)	DHA1724
	10	Recycle Label M	DRW2307
NSP	11	Top Pad (Paper)	DHA1725
NSP	12	Round Pad (Paper)	DHA1727

9.2 INSTALLATION PROCEDURES

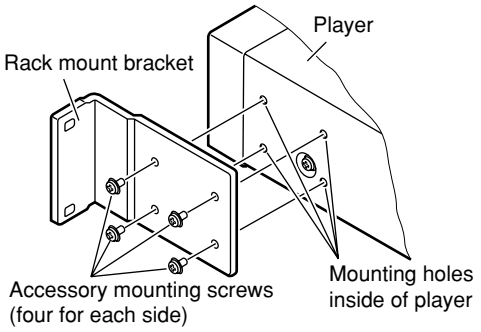
Installation Procedures

1. Disconnect all cords and cables (including power cord) attached to the player.

- To preserve data, be sure that no disc is loaded in the player.

2. Use the accessory screws to attach the mounting brackets to the right and left sides of the player, using the matching screw holes (see accompanying illustration).

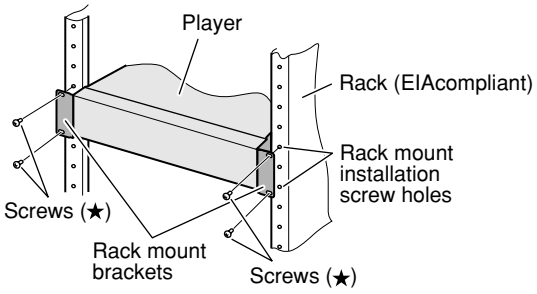
- When attaching the brackets, first insert the four screws and hand tighten (so the bracket can be moved slightly by hand). After confirming that the brackets are mounted in the proper positions, tighten the screws securely.



Precautions during installation

- The rack mount brackets are identical for right and left sides.
- During installation, place the player on a flat, level, and stable table surface. When installing the brackets, raise the player's side some 10 mm or more above the table surface to allow easy installation of the brackets.
  Attempting to forcibly attach the brackets without raising the player's sides may result in damage to the player.
- Use only the mounting screws provided as accessories with this product. Attempting to use other screws may result in damage to the player, or the player may fall.

3. After confirming that the screws installed in step 2 are tightened securely, install the player on the rack.



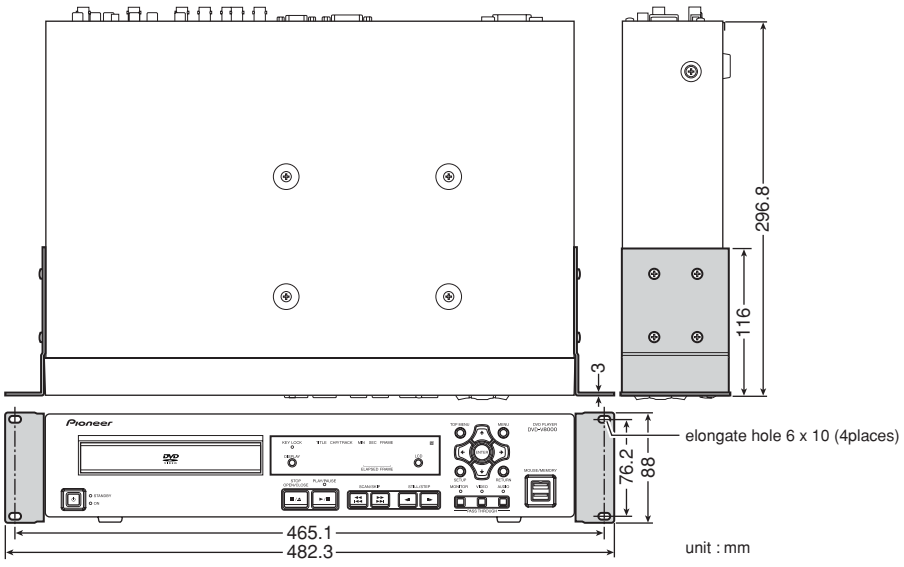
[Caution]

- Do not attempt installation before confirming that the rack is strong enough to sustain the weight of the player and is proper for the installation location.
- Screws indicated with a star (★) in the illustration are not provided for attaching the rack mount brackets to the rack itself. Select mounting screws that are appropriate in length and strength for the weight of the unit, installation conditions, and the rack specifications. The position of the rack mount bracket holes are shown in this document's "**Dimensional Diagram**".
  Also, in order to assure safe and secure mounting of the player in the rack, be sure to place screws in all four holes provided in each rack mount bracket.
- Installation to the rack should always be performed by two or more persons.
- During installation, take care not to pinch your fingers or other objects between rack mount brackets and the rack sides.

4. Confirm that the screws inserted in step 3 are tightened securely before completing the installation

- After installation, if the accessory rack mount bracket screws or the rack mounting screws become loose, vibration caused by the player's disc rotation or produced by other components may cause distortion in sound reproduction, as well as leading to the danger of the player's accidental falling. Be sure to confirm that all screws are tightened securely.

Dimensional Diagram



A

B

C

D

E

F

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Data Disc	GGV1174	diagnosis (ID data setting)
24P Flexible Cable	GGD1111	Diagnosis of DVDM Assy
Extension Board	GGF1575	Diagnosis of DVDM Assy
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
Cable fo download	GGD1204	for serial download

■ Lubricants and Glues list 

Name	Lubricants and Glues No.	Remark
Dyefree	GEM1036 (ME-913A)	Refer to "2.4 LOADER MECHA ASSY"
Grease	GYA1001 (PN-397)	Refer to "2.4 LOADER MECHA ASSY"
Grease	GEM1018 (G-478B)	Refer to "2.4 LOADER MECHA ASSY"
Sillicone Adhesive	GEM1037	Refer to "2.5 TRAVERSE MECHA ASSY-S"
Screw Tight	GYL1001	Refer to "2.5 TRAVERSE MECHA ASSY-S"

■ Cleaning 

• Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools	Remark
Pickup leneses	Cleaning liquid : GEM1004	Refer to "2.5 TRAVERSE MECHA ASSY-S" , "7.6 DISASSEMBLY".
	Cleaning paper : GED-008	